LOUISIANA TECH UNIVERSITY

www.LaTech.edu

Leslie K. Guice, PhD
President

UNIVERSITY CATALOG 2015-2016

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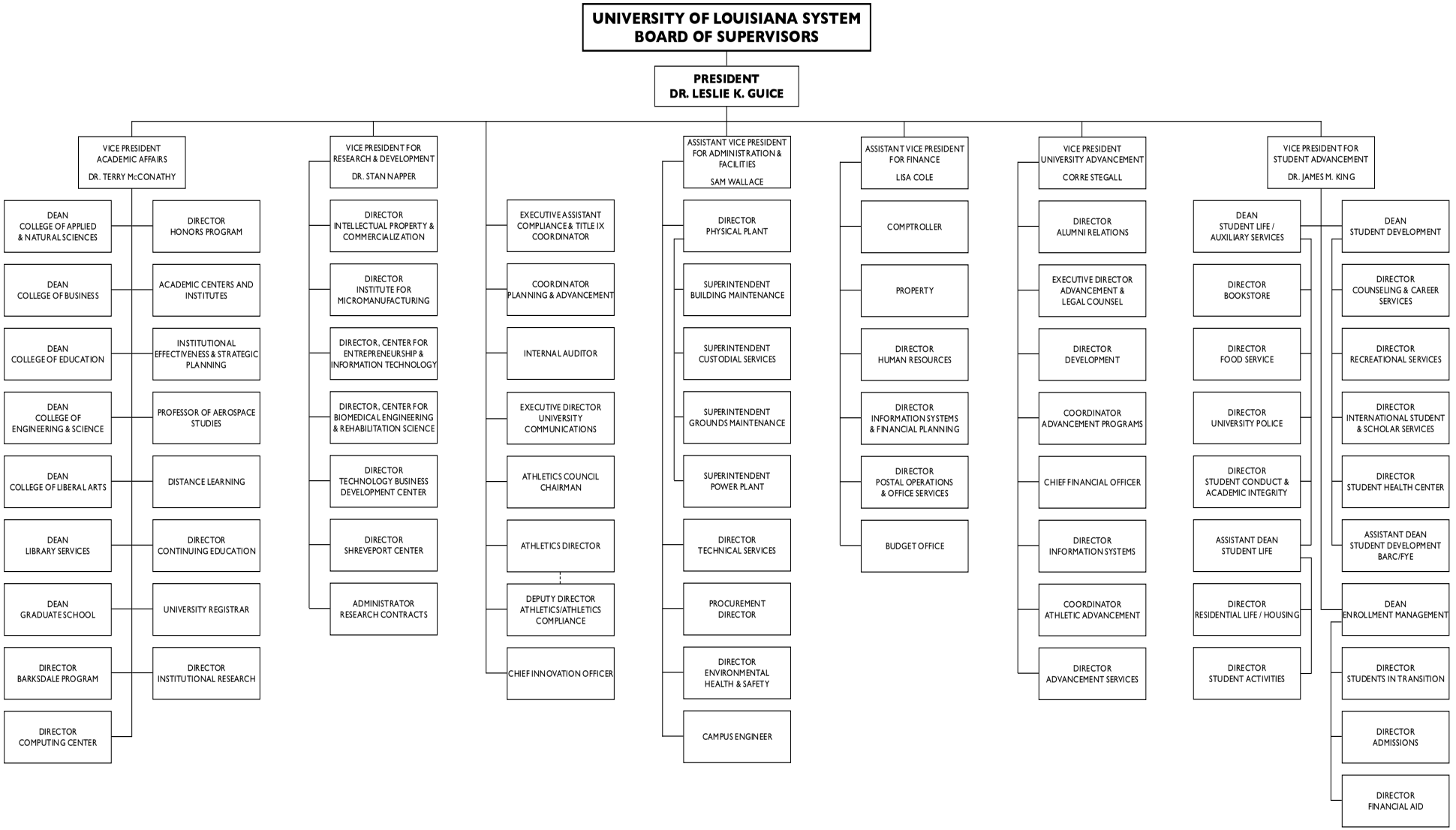
LOUISIANA TECH UNIVERSITY
RUSTON, LOUISIANA

MAIN CAMPUS

1. A.E. Phillips Laboratory School
2. Adams Classroom
3. Adams Hall *(Residence)*
4. Argent Pavilion
5. Aswell Hall *(Residence)*
6. Band Building
7. Biomedical Engineering Building
8. Bogard Hall *(Engineering)*
9. Bookstore
10. Carson-Taylor Hall *(Human Ecology & Science)*
11. Centennial Plaza/Centennial Tower
12. College of Business
13. Cottingham Hall *(Residence)*
14. Davison Hall *(Professional Aviation Building)*
15. Dudley Hall *(Residence)*
16. Early Childhood Education Center *(Human Ecology)*
17. Engineering Annex
18. Enterprise Center
19. Football Practice Field
20. George T. Madison Hall *(Arts & Sciences)*
21. Graham Hall *(Residence)*
22. Hale Hall *(Admissions & Architecture)*
23. Harper Hall *(Residence)*
24. Howard Center for the Performing Arts
25. Hutcheson Hall *(Residence)*
26. Institute for Micromanufacturing
27. Intramural Lower Field
28. Intramural Upper Field
29. J.C. Love Field at Pat Patterson Park
30. Jenkins Hall *(Housing Custodial Offices)*
31. Jim Mize Track & Field Complex
32. Joe Aillet Field House & Charles Wyly Athletics Center
33. Joe Aillet Stadium
34. KLPI Building
35. Keeny Hall *(Administration)*
36. Lady Techsters Soccer Field
37. Lady Techsters Softball Complex
38. Lambright Intramural Sports Center
39. Landscape/Lawnmower Shop
40. M.S. Carroll Natatorium
41. Marbury Alumni Center
42. McFarland Hall *(Housing Custodial Offices)*
43. Memorial Gymnasium
44. Mitchell Hall *(Residence)*
45. Nethken Hall *(Engineering)*
46. Park Place Apartments *(Hutcheson Commons)* A,B,C,D,E
47. Park Place Apartments *(Jenkins Commons)* A,B,C,D
48. Park Place Apartments *(McFarland Commons)* A,B,C
49. Pearce Hall *(Residence)*
50. Planetarium
51. Power Plant & Custodial Offices
52. Prescott Memorial Library
53. President's Home
54. Richardson Hall *(Art Studios)*
55. Robinson Hall *(Speech & Hearing Clinic)*
56. Ropp Center *(University Club)*
57. South Hall *(University Police/Health Clinic)*
58. Student Center
59. Tech Pointe
60. Thomas Assembly Center
61. Tolliver Hall/Post Office
64. University Hall *(Center for Entrepreneurship and Information Technology)*
65. University Park Apartments *(Caruthers Commons)* A,B,C,D
66. University Park Apartments *(Neilson Commons)* A,B,C,D
67. University Park Apartments *(Thatcher Commons)* A,B
68. University Park Apartments *(Kidd Commons)* A,B,C
69. University Park Apartments *(Sutton Commons)* A,B,C,D,E
70. Visual Arts Center
71. Woodard Hall *(Education & Idea Place)*
72. Wyly Tower of Learning

SOUTH CAMPUS

1. Applied Sciences Advanced Studies Labs
2. Art & Architecture Workshop
3. Butler Building *(Buildings & Grounds)*
4. Dairy Processing Plant
5. Enviromental Safety Building
6. Equine Center
7. Farm Shop
8. Farm Storage
9. Forestry Laboratory Building
10. Lomax Hall
11. Livestock Production Laboratory
12. Maintenance Shops
13. Meat Processing Laboratory & Dairy Production Center
14. Nanopulse Facility
15. Physical Plant
16. Printing Department
17. Reese Hall
18. Sawmill
19. Tech Farm Sales Room
20. Tractor & Machinery Laboratory
21. Trenchless Technology Center
22. Vetville
23. Wash Rack & Bus Shed



In the absence of the President, the hierarchy of responsible charge shall be:

Vice President for Academic Affairs
Vice President for Student Advancement

ORGANIZATION CHART FOR LOUISIANA TECH UNIVERSITY

MEMBER, UNIVERSITY OF LOUISIANA SYSTEM

REVISED MARCH 12, 2015

Accreditation

Louisiana Tech University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award associate, baccalaureate, masters, and doctoral degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call (404) 679-4500 for questions about the accreditation of Louisiana Tech University.

Accreditation in Specific Areas

AACSB International - The Association to Advance Collegiate Schools of Business
ABET
Accreditation Commission for Education in Nursing (ACEN)
American Chemical Society
American Psychological Association
Aviation Accreditation Board International (AABI)
Commission on Accreditation for Dietetics Education of the American Dietetic Association
Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)
Computing Accreditation Commission of ABET
Council for Accreditation of Counseling and Related Educational Programs (CACREP)
Council for Interior Design Accreditation (CIDA)
Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association
Engineering Accreditation Commission of ABET
Engineering Technology Accreditation Commission of ABET
International Association of Counseling Services, Inc. (IACS)
National Academy of Early Childhood Programs Division of the National Association for the Education of Young Children (NAEYC)
National Architectural Accrediting Board (NAAB)
National Association of Schools of Art and Design (NASAD)
National Association of Schools of Music (NASM)
National Council for the Accreditation of Teacher Education
Society of American Foresters
The Council for Accreditation of the American Association of Family and Consumer Sciences

Member

American Association of Colleges for Teacher Education
American Association of Collegiate Registrars and Admissions Officers (AACRAO)
American Association of State Colleges and Universities
American Council on Education (ACE)
Association for University Business and Economics Research
Conference of Southern Graduate Schools
Council on International Education Exchange
Council on Law in Higher Education
Institute of International Education
Louisiana Campus Compact
National Association of Colleges and Employers (NACE)
National Association of State Universities and Land-Grant Colleges
National Association of Student Financial Aid Administrators (NASFAA)
Southeastern Universities Research Association, Inc.
Southern Association of Collegiate Registrars and Admissions Officers (SACRAO)

Affiliation

National Commission on Accrediting
National Council of University Research Administrators

LOUISIANA TECH UNIVERSITY

Undergraduate Degrees

CIP	DEGREE DESIGNATION	DEGREE SUBJECT AREA (MAJOR)	CONCENTRATION
		College of Applied and Natural Sciences	
010101	Bachelor of Science	Agricultural Business	Business Plant Science
010901	Bachelor of Science	Animal Science	Equine Science Livestock Production Pre-Veterinary Medicine
030104	Bachelor of Science	Environmental Science	
030501	Bachelor of Science	Forestry	Wildlife Habitat Management Forest Management
190701	Bachelor of Science	Family and Child Studies	Applied Child Development Child Life Family Science
190905	Bachelor of Science	Fashion Merchandising and Retail Studies	
260101	Bachelor of Science	Biology	Applied Biology Biological Sciences
450799	Bachelor of Science–Interdisciplinary	Geographic Information Science	Natural Resources Social Sciences
510706	Bachelor of Science	Health Informatics & Information Management	
511005	Bachelor of Science	Medical Technology	
513101	Bachelor of Science	Nutrition & Dietetics	
513801	Associate of Science Nursing	Nursing	
		College of Business	
520201	Bachelor of Science	Business Administration	
520201	Bachelor of Science	Management	Business Management Entrepreneurship Human Resources Management
520203	Bachelor of Science	Sustainable Supply Chain Management	
520301	Bachelor of Science	Accounting	
520601	Bachelor of Science	Business Economics	
520801	Bachelor of Science	Finance	
521201	Bachelor of Science	Computer Information Systems	
521401	Bachelor of Science	Marketing	General Marketing Key Account Development Marketing Analytics Sports Marketing
		College of Education	
131202	Bachelor of Science	Elementary Education - Gr 1-5	
131202	Bachelor of Science	Elementary Education and Special Education Mild/Moderate – Gr 1-5	
131203	Bachelor of Science	Middle School Education- Gr 4-8	Middle School Educ Math 4-8 Middle School Educ Sci 4-8
131205	Bachelor of Science	Secondary Education & Teaching – Gr 6-12	Agricultural Educ – Gr 6-12 Business Educ – Gr 6-12 English Educ – Gr 6-12 Family/Consumer Sci Educ – Gr 6-12 Social Studies Educ – Gr 6-12
131210	Bachelor of Science	Early Childhood Education – Gr PK-3	
131314	Bachelor of Science	Health and Physical Education - Gr K-12	
310505	Bachelor of Science	Kinesiology and Health Promotion	Clinical Health
420101	Bachelor of Arts	Psychology	
		College of Engineering and Science	
110701	Bachelor of Science	Computer Science	Bioinformatics Cloud Computing & Big Data Computer Engineering Cyber Security Graphics & Game Design
140501	Bachelor of Science	Biomedical Engineering	Pre-Medical Chemical Engineering Computer Information Electrical Engineering Mechanical Engineering Microsystems Engineering
140701	Bachelor of Science	Chemical Engineering	
140801	Bachelor of Science	Civil Engineering	
141001	Bachelor of Science	Electrical Engineering	
141901	Bachelor of Science	Mechanical Engineering	
143501	Bachelor of Science	Industrial Engineering	

CIP	DEGREE DESIGNATION	DEGREE SUBJECT AREA (MAJOR)	CONCENTRATION
149999	Bachelor of Science	Nanosystems Engineering	Biomedical Engineering Chemical Engineering Electrical Engineering Mechanical Engineering Microsystems Engineering
149999	Bachelor of Science	Cyber Engineering	
150303	Bachelor of Science	Electrical Engineering Technology	
151001	Bachelor of Science	Construction Engineering Technology	
270101	Bachelor of Science	Mathematics	
400501	Bachelor of Science	Chemistry	Pre-Medicine Pre-Dentistry
400801	Bachelor of Science	Physics	
		College of Liberal Arts	
240102	Associate of General Studies NOTE: This degree is offered at TECH–BAFB.	General Studies (GNST)	Arts Business Admin Computer Applications Criminal Justice Humanities History Natural Sciences Psychology Social Sciences
040501	Bachelor of Interior Design	Interior Design	
049999	Bachelor of Science	Architectural Studies	
090401	Bachelor of Arts	Communication	Communication Studies Journalism Theatre
160101	Bachelor of Arts	Modern Languages	French Spanish
230101	Bachelor of Arts	English	Creative Writing Literature Technical Writing
240102	Bachelor of General Studies	General Studies	Arts Business Admin Computer Applications Criminal Justice Educational Services Humanities History Natural Sciences Psychology Social Sciences
450799	Bachelor of Science	Geographic Information Science	Natural Resources Social Sciences
451001	Bachelor of Arts	Political Science	Pre-Law Geography
451101	Bachelor of Arts	Sociology	
490102	Bachelor of Science	Professional Aviation	
490104	Bachelor of Science	Aviation Management	Aviation Maintenance Management
500409	Bachelor of Fine Arts	Graphic Design	
500702	Bachelor of Fine Arts	Art-Studio	Photography
500901	Bachelor of Arts	Music	Composition Music Educ – Instrumental Gr K-12 Music Educ – Vocal Gr K-12 Performance Liberal Arts
510204	Bachelor of Arts	Pre-Professional Speech-Language Pathology	Audiology
540101	Bachelor of Arts	History	

LOUISIANA TECH UNIVERSITY

Graduate Degrees

CIP	DEGREE DESIGNATION	DEGREE SUBJECT AREA (MAJOR)	CONCENTRATION
		College of Applied And Natural Sciences	
260101	Master of Science	Biology	
300101	Master of Science-Interdisc.	Molecular Science and Nanotechnology	
300101	Doctor of Philosophy-Interdisc.	Molecular Science and Nanotechnology	
510706	Master of Health Informatics	Health Informatics	
513101	Master of Science	Nutrition & Dietetics	
		College of Business	
520201	Master of Business Administration	Business Administration	Accounting Computer Information Systems Economics Finance Information Assurance Innovation Management Marketing Quantitative Analysis Telecommunications
520301	Master of Professional Accountancy	Accounting	
520201	Doctor of Business Administration	Business Administration	Accounting Computer Information Systems Finance Management Marketing Quantitative Analysis
		College of Education	
130301	Master of Education	Curriculum and Instruction	Adult Education Biology Chemistry Early Childhood Early Intervention Special Educ Economics English History Library Science Mathematics Physics Reading Special Educ: Mild/Moderate Technology Visually Impaired
130401	Master of Education	Education Leadership	
130401	Doctor of Education	Educational Leadership	Educational Leadership Higher Education Administration Organizational Leadership
131009	Master of Arts in Teaching	Special Education: Visually Impaired	
131015	Master of Arts in Teaching	Special Education-Early Intervention: Birth to 5	
131101	Master of Arts Counseling and Guidance	Counseling & Guidance	Clinical Mental Health Counseling Human Service Orientation and Mobility Rehabilitation Teaching for the Blind School Counseling
131202	Master of Arts in Teaching	Elementary Education Gr 1-5	
131202	Master of Arts in Teaching	Elementary Educ & Special Educ Mild/Mod Gr 1-5	
131203	Master of Arts in Teaching	Middle School Education Gr 4-8	Middle School Educ Math 4-8 Middle School Educ Sci 4-8
131205	Master of Arts in Teaching	Secondary Education Gr 6-12	Agriculture Educ–Gr 6-12 Business Educ–Gr 6-12 English Educ–Gr 6-12 Gen Sci/Biology Educ–Gr 6-12 Gen Sci/Chemistry Educ–Gr 6-12 Gen Sci/Earth Sci Educ–Gr 6-12 Gen Sci/Physics Educ–Gr 6-12 Mathematics Educ–Gr 6-12 Social Studies Educ–Gr 6-12
131205	Master of Arts in Teaching	Secondary Educ and Special Educ Mild/Mod Gr 6-12	English General Science Mathematics Social Studies

CIP	DEGREE DESIGNATION	DEGREE SUBJECT AREA (MAJOR)	CONCENTRATION
131210	Master of Arts in Teaching	Early Childhood Education Gr PK-3	
131314	Master of Science	Kinesiology	Admin. of Sport & Phys. Activity. Sports Performance
422803	Doctor of Philosophy	Counseling Psychology	
422804	Master of Arts	Industrial/Organizational Psychology	
422804	Doctor of Philosophy	Industrial/Organizational Psychology	
College of Engineering And Science			
110701	Master of Science	Computer Science	
140101	Master of Science Engineering	Engineering	Biomedical Engineering Chemical Engineering Civil Engineering Communications Systems Electrical Engineering Industrial Engineering Mechanical Engineering
142701	Master of Science	Microsystems Engineering	
151501	Master of Science	Engineering and Technology Management	Engineering Management Management of Technology
270101	Master of Science	Mathematics	
300101	Master of Science-Interdisciplinary	Molecular Science and Nanotechnology	
400801	Master of Science	Applied Physics	
119999	Doctor of Philosophy	Computational Analysis & Modeling	
140101	Doctor of Philosophy	Engineering	Cyberspace Engineering Education Engineering Physics Materials & Infrastructure Systems Micro & Nanoscale Systems
140501	Doctor of Philosophy	Biomedical Engineering	
300101	Doctor of Philosophy-Interdisc	Molecular Science and Nanotechnology	
College of Liberal Arts			
040201	Master of Architecture	Architecture	
090101	Master of Arts	Speech	Speech Communication Theatre
230101	Master of Arts	English	Literature Technical Writing
500702	Master of Fine Arts	Art	Graphic Design Photography Studio
510203	Master of Arts	Speech Pathology	
540101	Master of Arts	History	
510202	Doctor of Audiology	Audiology	

University Academic Calendar

Academic Year 2015 – 2016

Summer Quarter 2015

March 1	International Admissions: Completed applications and transcripts due for all new international students.
May 1	Graduate Admissions: Completed applications/transcripts due to Graduate School for new graduate students.
May 1	Undergraduate Admissions: Completed applications for admission/readmission due.
June 2	Summer Quarter 2015 begins.
June 2	Registration for all students who have not completed registration and fee payment.
June 3	Summer Quarter 2015 classes begin.
July 2	Fourth of July holiday begins at end of classes.
July 6	Fourth of July holiday ends, classes resume.
July 8	First Summer Session ends.
July 13	Second Summer Session begins.
August 14	Last day of Summer Quarter 2015 classes.
August 20	Commencement Exercises - 10:00 a.m., Thomas Assembly Center.
August 20	Summer Quarter 2015 ends.

Fall Quarter 2015

June 1	International Admissions: Completed applications and transcripts due for all new international students.
August 1	Graduate Admissions: Completed applications/transcripts due to Graduate School for new graduate students.
August 1	Undergraduate Admissions: Completed applications for admission/readmission due.
September 7	Labor Day
September 9	Fall Quarter 2015 begins.
September 9	Registration for all students who have not completed registration and fee payment.
September 10	Fall Quarter 2015 classes begin.
November 19	Last day of classes.
November 21	Commencement Exercises - 10:00 a.m., Thomas Assembly Center.
November 21	Fall Quarter 2015 ends.

Winter Quarter 2015 - 2016

September 1	International Admissions: Completed applications and transcripts due for all new international students.
November 1	Graduate Admissions: Completed applications/transcripts due to Graduate School for new graduate students.
November 1	Undergraduate Admissions: Completed applications for admission/readmission due.
December 1	Winter Quarter 2016 begins.
December 1	Registration for all students who have not completed registration and fee payment.
December 2	Winter Quarter 2016 classes begin.
December 18	Christmas/New Year holidays begin at end of classes - University closes.

2016

January 4	Christmas/New Year holidays end. Classes resume at 8:00 a.m.
January 18	Martin Luther King, Jr. Birthday Observance – University closed.
February 5	Mardi Gras holiday begins at end of classes
February 11	Mardi Gras holiday ends. Classes resume at 8:00 a.m.
March 1	Last day of Winter Quarter 2016 classes.
March 5	Commencement Exercises - 10:00 a.m., Thomas Assembly Center.
March 5	Winter Quarter 2016 ends.

Spring Quarter 2016

December 1	International Admissions: Completed applications and transcripts due for all new international students.
February 1	Graduate Admissions: Completed applications/transcripts due to Graduate School for new graduate students.
February 1	Undergraduate Admissions: Completed applications for admission/readmission due.
March 8	Spring Quarter 2016 begins.
March 8	Registration for all students who have not completed registration and fee payment.
March 9	Spring Quarter 2016 classes begin.
April 24	Easter holiday begins at end of classes.
April 28	Easter holiday ends. Classes resume at 5:00 p.m.
May 20	Last day of Spring Quarter 2016 classes.
May 21	Commencement Exercises - 10:00 a.m., Thomas Assembly Center.
May 21	Spring Quarter 2016 ends.

Chapter 1 – University Overview

History

Tech's formal name is Louisiana Tech University, but, when it was founded in 1894, it was named Industrial Institute and College of Louisiana. Act 68 of the General Assembly called for a "first-class" school to be located in Ruston designed to educate citizens in the arts and sciences and in "the practical industries of the age." The school was located on 20 acres of land and in a single building, both donated by the city of Ruston. By September 1895, with its president and faculty of six in residence, Tech opened its door to 202 students.

The first degree offered, the Bachelor of Industry, was granted in fields as diverse as music and telegraphy. The first student to receive the degree was Harry Howard, Class of 1897. Mr. Howard was not required to go through a formal graduation program. After his qualifications were examined, Col. A.T. Prescott, the first president, awarded the degree. The first graduation exercises were not held until the following year, 1898, when ten degrees were awarded in a ceremony at the Ruston Opera House.

During the first few decades, the institution's name, purpose, and functions were modified to meet the needs of the people it served. In 1921, the school's name was changed to Louisiana Polytechnic Institute. The Bachelor of Industry degree was discarded and the degrees standard to American education were granted. As the college increased its enrollment and offerings, continual changes were made to meet those additional responsibilities. In 1970, the name was changed to Louisiana Tech University.

Today, the University continues to prosper with an enrollment of 9,215 undergraduates from over 44 states and 65 foreign countries and 1,799 graduate students. The student-to-faculty ratio is 23:1.

The physical plant has grown to more than 165 buildings. There are approximately 280 acres on the main campus, 474 acres of land located on the farm campus, 167 acres of farm land just west of the campus, 200 acres of forest land in Winn Parish, 30 acres of land in Shreveport, 80 acres of forest land in Natchitoches Parish, 323 acres of land in Union Parish, a 44 acre golf course in Lincoln Parish, 14 acres of land west of the campus for an arboretum and a Flight Operations Center located at the Ruston Municipal Airport.

Louisiana Tech is assembling a Research Park campus, named Enterprise Campus, to adjoin the eastern most side of the main campus. The lead building named Tech Pointe was occupied in 2011 and has over 42,000 square feet of space with leading edge infrastructure dedicated to research and development of high-growth, technology-based businesses. The new building plays an important role of promoting and extending the university's research and development activities.

The new Business Building was completed in the Summer of 2012 and has 42,000 square feet of space designed for contemporary education of Business Students from Bachelor through Doctorate programs. The Business Building is located in the Enterprise Campus and links the Enterprise Campus activities to the traditional campus.

Since the Fall of 2004, University housing has been transformed to provide state-of-the-art apartment style residential units in two unique developments, encompassing approximately 15 acres. University Park opened in 2004 and houses 608 students in 18 buildings grouped in 5 unique residential commons with panoramic views of campus athletic venues. Park Place houses 348 students in 12 buildings on 3 unique urban sites immediately adjacent to the academic center of campus. Respective developments provide popular amenities, a residential environment that encourages campus community development, and immediate access to core academic areas and recreational venues.

The focal point of the campus is the Quadrangle, the center of which is a granite fountain named "The Lady of the Mist." Prescott Memorial Library (named for the University's first president), Wyly Tower of Learning, and George T. Madison Hall form the north end of the Quadrangle. Keeny Hall (named after the University's sixth president) is at the east side; and the Howard Center for the Performing Arts (named for Tech's first graduate) frames the south side.

The Centennial Plaza was constructed in 1995. The Plaza's alumni walkway bears approximately 94,000 engraved bricks representing all Tech graduates and continues to expand.

The Student Center and Tolliver Hall border the west side of the Quadrangle. Tolliver Hall renovation provides a spacious, contemporary gathering spot for students replete with a convenience store, cyber café, student association offices, and the Spirit of Tech wall, a 120-foot art mural showcasing Tech's past and present.

Hale Hall, built in 1898, has been reconstructed to its original architectural grandeur. This building houses the School of Architecture, Interior Design and the Office of Undergraduate Admissions.

The Biomedical Engineering Building, completed in 2007, houses Tech's Center for Biomedical Engineering and Rehabilitation Science (CBERS) and forms the basis for continued biomedical research with the Institute for Micromanufacturing, as well as numerous other centers of excellence.

Mission Statements

Louisiana Board of Regents' Mission Statement for Louisiana Tech University

Louisiana Tech University recognizes its three-fold obligations to advance the state of knowledge, to disseminate knowledge, and, to provide strong outreach and service programs and activities. To fulfill its obligations, the University will maintain a strong research, creative environment, and intellectual environment that encourages the development and application of knowledge. Recognizing that service is an important function of every university, Louisiana Tech provides outreach programs and activities to meet the needs of the region and the state.

Louisiana Tech views graduate study and research as integral to the University's purpose. Committed to graduate education through the doctorate, it will conduct research appropriate to the level of academic programs offered and will have a defined ratio of undergraduate to graduate enrollment. Doctoral programs will continue to focus on fields of study in which the University has the ability to achieve national competitiveness or to respond to specific state or regional needs. As such, Louisiana Tech will provide leadership for the region's engineering, science and business innovation.

Louisiana Tech is categorized as an SREB Four-Year 2 institution, as a Carnegie Doctoral/Research University – high research activity category, and as a COC/SACS Level VI institution. Louisiana Tech will not offer associate degree programs. The University maintains defined standards for admission. Louisiana Tech is located in Region VII.

Mission – Louisiana Tech University

Louisiana Tech University is a comprehensive public university committed to quality in teaching, research, creative activity, public service, and economic development. A selective admissions university, it offers a broad and diverse range of fully accredited undergraduate degrees to qualified students in Louisiana, as well as from the region, the nation, and foreign countries. Integral to the purpose of the University is its expanding commitment to graduate-level and interdisciplinary education in its areas of strength. Louisiana Tech offers master's degrees in a variety of areas and doctoral programs in areas of specified expertise.

Louisiana Tech maintains, as its highest priority, the education of its students. Endorsing a culture of equity, diversity, and inclusion, it recruits a faculty committed to teaching and advising, and a student-oriented faculty and staff dedicated to preparing students to achieve their goals in a rapidly changing economic and civic environment. The University provides, in a technology-rich and challenging, yet safe and supportive environment, academic and co-curricular experiences,

extra-curricular activities, and athletic programs that foster and enrich the development of its students. In addition, it provides opportunities for interaction between students and the larger business and civic community through strategic partnerships with public and private industries. The University encourages its students to regard learning as a lifelong process.

Recognizing that research and service are fundamental to its mission, Louisiana Tech recruits and retains a faculty who see research and teaching as intertwined, complementary, and interdisciplinary and who, through both theoretical and applied research and creative activities, contribute to the development of new knowledge, new art, and new technology.

Louisiana Tech University understands its community and civic obligations. Through on-campus learning, through its off-campus presence, through outreach programs, service learning, and continuing education, the University will continue to enhance the quality of life and the economic development of the region, state, and nation.

As a university with a rich engineering heritage, Louisiana Tech has a special responsibility to integrate advanced technology into teaching and learning. At Tech, advanced technology supports quality teaching, research, administration, and service. The University is committed to providing its students with the advanced technological skills that will help to ensure their success both in the internal environment of the University and in the wider surrounding community.

Mission – Intercollegiate Athletics

Tech 2020 Athletics: Pressing Forward - Producing Greatness

Louisiana Tech University Athletics' Mission is to

- Embody excellence in everything we do.
- Develop student-athletes to maximize their potential in mind, body, and spirit.
- Bring pride, admiration, and loyalty to the University family, community, and state.
- Win with integrity.

Vision

Louisiana Tech University will be a conference leader in performance by investing strategically in student-athletes' development, providing superior facilities, and enhancing program support to achieve a local and national image of success and dominance.

Strategic Goals

Our Students: Competitive & Academic Performance, Citizenship

1. Louisiana Tech will be a competitive member of its conference that consistently wins in competition and in the classroom.
2. Louisiana Tech student-athletes will exceed all minimum academic standards and maintain the highest graduation rate among Division I public institutions in Louisiana.
3. Louisiana Tech students will be valued contributors to the Tech community.

Our Values: Equity, Integrity, Collaboration

1. Louisiana Tech will continue its commitment to equity through support of its intercollegiate athletics teams.
2. Louisiana Tech will continue its commitment to honesty and integrity in athletics.
3. Louisiana Tech will achieve its vision through cooperation across campus and in collaboration with the extended Louisiana Tech community.

Our Image: Marketing & Media - Tell the Tech Story, Build the Bulldog Brand

1. Louisiana Tech will elevate its image to be recognized nationally as one of the two major competitors in Louisiana.

Our Strategy: Sound Financial Resources & Facilities, Excellent Coaching & Administrative Staff

1. Louisiana Tech Athletics will raise funds to support its overall budget.
2. Louisiana Tech will have facilities that are equivalent to the top half of the Conference and meet the qualifications necessary to host NCAA championship events.
3. Louisiana Tech will operate with a team of staff and coaches equipped with the skills, experience, and attitudes reflective of a top athletics program.

Strategic Plan

TECH 2020: Tomorrow's Tech Today

Louisiana Tech University's strategic and long-term planning process is an integral part of the University's Management Plan. Input to the planning process is broad-based and continuous as Tech continues its path to greatness.

Vision: Louisiana Tech University will be a top public research university with an unparalleled integrated educational experience.

Theme 1: Recruiting and retaining a diverse undergraduate and graduate student body and university community.

STRATEGIC PRIORITY 1.1: Reevaluate recruitment strategies and processes.

STRATEGIC PRIORITY 1.2: Reallocate and reorganize existing human , financial, and web-based resources.

STRATEGIC PRIORITY 1.3: Implement a comprehensive undergraduate and graduate retention model.

Theme 2: Integrating learning, discovery, and development for an unparalleled education.

STRATEGIC PRIORITY 2.1: Design, develop, and implement an interdisciplinary, integrated seminar series at sophomore, /junior level focused on knowledge and skills that are hallmarks of Louisiana Tech graduates, regardless of degree program.

STRATEGIC PRIORITY 2.2: Enhance the quality of online education and coordinate the development of new online programs for academic degrees, professional development courses, and academic and workforce certificate programs.

STRATEGIC PRIORITY 2.3: Increase interdisciplinary research experiences for both undergraduate and graduate students.

STRATEGIC PRIORITY 2.4: Design and implement a cultural and artistic exhibition center.

Theme 3: Elevating our research and graduate programs to national prominence.

STRATEGIC PRIORITY 3.1: Assess current research policies and procedures related to increase research success.

STRATEGIC PRIORITY 3.2: Improve data-driven decision-making in research, technology transfer, and graduate studies.

STRATEGIC PRIORITY 3.3: Increase research success.

STRATEGIC PRIORITY 3.4: Increase number of interdisciplinary doctoral degrees on campus.

Theme 4: Maximizing the economic impact of our innovation enterprise.

STRATEGIC PRIORITY 4.1: Create easily accessible, extra-curricular opportunities for entrepreneurial and multi-disciplinary experiences.

STRATEGIC PRIORITY 4.2: Initiate proactive marketing, recruitment, and development strategies for the Enterprise Campus and integrate student experiences.

STRATEGIC PRIORITY 4.3: Expand our workforce development partnerships with regional business partners (collaboration with Theme 2 group).

Equal Opportunity Policies

Louisiana Tech University adheres to the equal opportunity provisions of federal civil rights laws and regulations that are applicable to this agency. Therefore, no one will be discriminated against on the basis of race, sex, sexual orientation, religion, national origin, age, dis-

ability, marital status, or veteran's status in the pursuit of educational goals and objectives and in the administration of personnel policies and procedures. Anyone who believes they have been subjected to discrimination and/or harassment in violation of this policy, or have questions or complaints regarding equal opportunity at Louisiana Tech University should contact Mrs. Carrie Flournoy, Executive Assistant, Title IX & Compliance Coordinator, located within the Office of the University President, Room 1620, Wyly Tower, Ruston, Louisiana 71272; telephone 318-257-3785.

Admissions

Louisiana Tech University assures equal opportunity for all qualified persons regardless of race, sex, sexual orientation, religion, color, national origin, age, disability, marital status, veteran's status in admission to the University.

Disability Services

The Office of Disability Services (Wyly Tower Room 318) coordinates campus-wide efforts to provide information and services to Louisiana Tech students with disabilities. Inquiries concerning services for students with disabilities should be directed to the Office of Disability Services, or the Admissions Office. Services are available to students who provide appropriate documentation to the Office of Disability Services. Any student with a documented disability condition (e.g., physical, learning, psychiatric, vision, hearing, etc.) and seeking classroom accommodations should contact the instructor(s) and the Office of Disability Services at the beginning of each quarter. (318) 257-4221 www.latech.edu/ods. See page 28 for further information regarding Grievance Procedures.

Employment

Louisiana Tech University is committed to the principle of providing the opportunity for learning and development of all qualified citizens without regard to race, gender, sexual orientation, religion, color, national origin, age, disability, citizenship, marital status, veteran's status for admission to, participation in, or employment in the programs and activities which the University sponsors or operates. The President of the University has established the policy that all employment practices will be continually monitored to ensure that all University administrators, deans, directors, department heads, and other budget unit heads take positive action in complying with the goals of equal employment opportunity.

Family Educational Rights and Privacy Act (FERPA)

The following statement is issued in compliance with the Family Educational Rights and Privacy Act (FERPA) of 1974:

Louisiana Tech University is responsible for effectively supervising any access to and/or release of official information about its students. Certain items of information about individual students are fundamental to the educational process and must be recorded. This recorded information concerning students must be used only for clearly defined purposes, must be safeguarded and controlled to avoid violations of personal privacy, and must be appropriately disposed of when the justification for its retention no longer exists. In this regard, Louisiana Tech is committed to protecting to the maximum extent possible the right of privacy of all the individuals about whom it holds information, records, and files. Access to and release of such records is restricted to the student concerned, to others with the student's written consent, to officials within the University, to a court of competent jurisdiction, and otherwise pursuant to law.

University Emergency Announcements

Through the Emergency Notification System

Louisiana Tech University uses the Emergency Notification System to provide cell phone and text message alerts to students, faculty, and staff in the event of a situation in which the campus community needs to take preventative steps for their own safety. Short, situation-specific messages will be transmitted.

Students are strongly encouraged to register through BOSS to receive the emergency alerts. In addition to submitting their cell phone numbers, students may provide cell phone numbers of parents and other emergency contacts. This emergency contact information will be used for emergency notifications ONLY and will not be used for proprietary or non-emergency purposes.

For more information on how to enroll, please visit www.latech.edu/administration/ens.php.

Through the Media

Louisiana Tech is in session in accordance with the published academic calendar, schedule of classes, and University Catalog unless otherwise announced through the news media as authorized by the President or his designee. In the event of severe weather or any other problem, the Louisiana Tech Emergency Response Team will release one of the following authorized announcements:

> ***"Louisiana Tech University is closed."*** This means that no classes are being held and only certain designated Building and Grounds maintenance staff are on duty.
>
> ***"Classes are dismissed. All offices are open."*** This means all employees other than nine month faculty are on duty.

Listen carefully and be sure to distinguish between announcements made for Louisiana Tech University and those made for the individual campuses of Louisiana Technical College. Don't confuse the two.

Announcements about closures will be made on Tech's Web site (www.latech.edu) and provided to the media as follows:

Ruston:	KXKZ-FM 107.5
Monroe:	KNOE-TV (Channel 8) KTVE-TV (Channel 10)
Shreveport:	KTBS-TV (Channel 3) KSLA-TV (Channel 12)

Alerts will also be made via Internet and social media:

- TECH Alerts (Twitter) @LATechAlerts or http://twitter.com/LATechAlerts
- Louisiana Tech Twitter: @LATech or http://twitter.com/LATech
- Louisiana Tech Facebook: http://www.facebook.com/latech
- Louisiana Tech Emergency Response Team website: http://ert.latech.edu/

If you have not heard or seen an announcement about the University's status, use your best judgment. Don't put yourself in danger.

Student Representation in University Activities

Louisiana Tech University is committed to providing a quality educational experience for students both within and outside the classroom. A high degree of interaction among students, faculty, and the University community is desired. The student presence found in numerous University committees demonstrates the importance of a student voice in key University decision making.

Some committees having student representation include: Administrative and Planning Council, Administrative Review Board, Athletics Council, Behavioral Standards Committee, College/Department Curriculum Committees, Fee Committee, Graduate Council, Honors Program Council, Instructional Policies Committee, Library Advisory Committee, Parking and Traffic Committee, Strategic Planning Committee, Student Self-Assessed Fees Oversight Committee, Student Organizations Committee, Student Technology Fee Board, Traditions

Committee, University Communications Committee, University Honor Council, University Multicultural Committee, and University Tour Committee.

Louisiana Tech University is required by accrediting agencies to evaluate the effectiveness of its academic programs and student services. Student participation is required through opinion surveys and standardized tests such as the student opinion survey, alumni survey, standardized test for general education, and standardized test for major field evaluation.

Chapter 2 – Undergraduate Admissions

Undergraduate Admissions Overview

Louisiana Tech University operates on a quarter calendar granting credit in semester hours. Qualified applicants may initiate their enrollment at the beginning of any quarter. Requests for information and application forms for undergraduate admission and readmission should be directed to:

Louisiana Tech University Office of Admissions
P.O. Box 3178
Ruston, Louisiana 71272-0001

Or visit admissions.latech.edu

Application packets are routinely sent to students who have scores on the American College Test (ACT) or Scholastic Aptitude Test (SAT) sent to the University. Applications are also available at most high schools and online - admissions.latech.edu. Applicants must submit ACT or SAT scores or both. Although scores are self-reported on the application, official notice of receipt of scores must be received directly from the testing agency, on an official transcript from the high school, or an official score report from testing agency. Scholarship applicants must take the ACT or SAT at least by December of their senior year of high school.

High school and college transcripts must be official documents bearing the stamp or seal of the issuing institution or submitted electronically through the Louisiana Student Transcript System. All high school transcripts should show a graduation date, grade point average, and class rank. Freshmen applicants may submit a 6- or 7-semester transcript for admission and scholarship decision. A final transcript must be received prior to enrollment. Arrangements for admission, housing, and need-based financial aid are made separately through the Admissions Office, Housing Office, and Financial Aid Office, respectively. Filing an application for admission does not entitle an applicant to University housing or financial aid; nor is the filing of a housing application, the assignment to a room, or the award of financial aid a commitment of admission to the University.

Applicants enrolled at the main campus must submit a medical history form prior to enrollment. A nonrefundable application fee of $20 must accompany the application for admission. International students should submit a $30 application fee. All persons previously banned for disciplinary reasons or misconduct or criminal activities cannot register without the specific approval of the Vice President for Student Affairs.

Immunization Policy

Louisiana Law (R.S. 17:170/R.S. 17:170.1/Schools of Higher Learning) requires all students entering Louisiana Tech University to be immunized for the following: Measles, Mumps, Rubella (2 doses) for those born on or after January 1, 1957; Tetanus-Diphtheria (within the past 10 years); and against Meningococcal disease (Meningitis booster needed at 16 years of age). The following guidelines presented are for the purpose of implementing the requirements of Louisiana R.S. 17:170.1, and of meeting the established recommendations for control of vaccine-preventable diseases as recommended by the American Academy of Pediatrics (AAP); the Advisory Committee on Immunization Practices to the United States Public Health Service (ACIP); and the American College Health Association (ACHA). Students not meeting these requirements will be prevented from registering for subsequent quarters.

The TB questionnaire is also mandatory. Anyone who answers yes to any of the questions will be required to receive and show proof of a negative TB skin test or chest x-ray prior to registration

Admission Requirements and Procedures

All students are encouraged to apply for admission. Louisiana Tech University may admit students not meeting all stated requirements. In such cases, the admission decision will be affected by the student's potential for degree completion and the need to enhance the University's demographically diverse student population. Some factors to be considered may include age, experience, ethnic background, and creative talent. In some cases, students not meeting all stated requirements may be invited to participate in the Bridge to Bulldogs program (see next page).

All high school grade point averages are calculated under uniform policies on a 4.00 scale. For scholarships, the University may take into consideration special designation on high school transcripts, such as honors and advanced placement courses.

Freshman Admission

Applicants for freshman admission and all applicants who have earned fewer than 24 semester hours of college credit must show proof of graduation from an accredited high school or have successfully completed the General Education Development Test (GED). No student with an ACT composite less than 15 or SAT less than 710 will be admitted. Students who meet the following requirements may be admitted:

In-State Student Admission Criteria

- Completion of 19 units Regents' Core (Core 4 Curriculum)
  AND
- Core 4 GPA of 2.5* or greater
  OR
- ACT composite score of 23/ SAT 1050** or greater
  AND
- Require no remedial course. A remedial course is not required if your ACT/SAT sub score is: English ≥ 18/450; Math ≥ 19/460

*Applicants with less than a 2.0 GPA will not be admitted.

**Applicants with less than a 15 ACT/SAT 710 composite score will not be admitted.

Out-of-State Student and Home-Schooled Admission Criteria

Must meet one of the following three criteria:

1. The in-state requirements listed above
   OR
2. ACT composite score of 23/SAT 1050 or greater, and a 2.5 grade point average on at least 17 units of the required HS Core 4 Curriculum
   OR
3. ACT composite score of 26/SAT 1170 or greater, and require no remedial courses. A remedial course is not required if your ACT/SAT sub score is: English ≥ 18/450; Math ≥ 19/460

Information concerning the CORE 4 curriculum can be found at URL www.louisianabelieves.com/resources/library/commoncore-state-standards

Freshmen applicants who intend to enroll in the Fall should apply by July 1 to be considered for priority enrollment and have ACT or SAT scores and high school transcripts on file. All freshmen are strongly encouraged to participate in the orientation program. Orientation includes testing for placement, the opportunity to meet with a faculty advisor, and completion of registration for the Fall. Announcements of dates and other information are sent to admitted students.

Transfer Admission

Students desiring to transfer to Louisiana Tech University **with fewer than** 24 non-remedial **semester hours** of college-level credit from a regionally accredited institution must have a minimum overall grade point average of 2.25 (on a 4.0 scale), must meet the same requirements as an entering freshman, must be eligible to re-enter the institution from which he/she is transferring, and have no need for remedial coursework. Students who have completed 24 **or more** non-remedial **semester hours** of college-level credit from a regionally ac-

credited institution must have a minimum overall grade point average of 2.25 (on a 4.0 scale on all transfer work), and must have completed a college-level English and a college-level mathematics course designed to fulfill general education requirements, and must be eligible to re-enter the institution from which he/she is transferring. Students transferring must submit an application and a complete, official transcript from each college attended, whether credit was earned or transferable. Transcripts must be mailed directly from the college/university to Louisiana Tech. Students who fail to acknowledge attendance at any college or university in which they have been registered are subject to having their admission canceled or, if enrolled, to being dismissed from Louisiana Tech. Evaluations concerning probation, suspension, grades, grade point average, hours pursued, and hours earned are based on Louisiana Tech's standards regardless of prior determinations at the other institutions attended.

No student is admitted if under scholastic or disciplinary suspension from another college or university. A suspended student will not be considered for admission until the time interval of suspension has elapsed; where such interval is not clearly defined, it is equal to a period comparable to rules in place at Louisiana Tech. An undergraduate student suspended from a System university may not enroll in another university within the System, but may enroll in a community college. To ensure minimal or no loss of credits upon return to the university, it is recommended that the student consult with his/her university advisor regarding the choice of courses to be taken at the community college. Credits earned under these conditions may be accepted for a degree at the suspending institution provided grades of "**C**" or higher are earned in each of the courses to be transferred.

Provisional status may be granted prior to scheduled registration dates on an individual basis. Provisional status is based on incomplete or unofficial transcripts, and, if the required transcripts are not received by the end of the first quarter, the student will not be permitted to attend subsequent quarters. When the required transcripts are submitted and if the student is determined to have been ineligible, no credit will be awarded for the initial quarter. No credit earned while under suspension from another institution is accepted toward a degree at Louisiana Tech. Official Louisiana Tech academic transcripts are not provided to any student with incomplete admissions records.

Accreditation status of transfer institutions is verified using the American Council on Education publication *Accredited Institutions of Postsecondary Education*, and through use of the *U.S. Department of Education Database of Accredited Postsecondary Institutions and Programs*. Transfer course work is posted from official transcripts received directly from institutions accredited by the following associations:

- Middle States Association of Colleges and Schools, Middle States Commission on Higher Education (MSCHE)
- Northwest Commission on Colleges and Universities (NWCCU)
- North Central Association of Colleges and Schools, The Higher Learning Commission (NCA-HLC)
- New England Association of Schools and Colleges, Inc., Commission on Institutions of Higher Education (NEASC-CIHE)
- Southern Association of Colleges and Schools (SACS), Commission on Colleges
- Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges (WASC-ACCJC)
- Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities (WASC-ACSCU).
- While all transfer course work is posted, the applicability of specific courses for the chosen curriculum is determined by the academic department head in conjunction with the college dean.

Louisiana Tech computes the GPA on all courses attempted, including repeated courses, courses with incomplete grades, and those with any other grades, except grades of W, WA, WB, WC, WD and No Credit, under this system:

Grade	Number of Quality Points:
A	4 quality points
B	3 quality points
C	2 quality points
D	1 quality point
F	0 quality points
The symbols "+" and "-" are disregarded.	

A maximum of 60 semester hours from a junior college or community college may be applied toward a bachelor's degree at Louisiana Tech. Normally, only courses taught at the freshman/sophomore level at Louisiana Tech are accepted from a junior/community college toward a degree at Louisiana Tech.

For students transferring from one public Louisiana college or university to another public Louisiana college or university, there is a Master Course Articulation Matrix that indicates transfer equivalencies. These transfer matrices may be accessed through the Louisiana Board of Regents' web site at http://regents.louisiana.gov/master-course-articulation-matrix-ay-2013-2014/. Please be advised that the matrices are not all-inclusive. There are additional courses that are articulated between specific campuses. The Louisiana Tech Admissions Office can assist you with individual transfer credit evaluations. Further, Louisiana Tech courses that are on the Master Course Articulation Matrix are indicated as such in the course description section of this Catalog. Statewide articulated courses are generally courses that are accepted for general education transfer credit. A particular course MAY or MAY NOT be accepted as equivalent to or substitute for a course in a specific discipline or major.

Readmission Students

Applicants for readmission to Louisiana Tech must complete an application for admission when the student has not been enrolled for one or more quarters (except for the Summer Quarter).

Readmission students who have attended another college/university since they were last enrolled at Louisiana Tech must submit an official transcript from each college/university. Transcripts must be mailed directly from the college/university to Louisiana Tech. If the required transcripts are not received by the end of the first readmitted quarter, the student will not be permitted to attend subsequent quarters. If the required transcripts are submitted and the student is determined to have been ineligible for readmission, no credit will be awarded for that quarter. Official Louisiana Tech academic transcripts will not be provided to any student with incomplete readmission records.

Bridge to Bulldogs

Bridge to Bulldogs is an innovative alternative entry program to Louisiana Tech University. This initiative is an invitation-only, residential summer program that allows students the chance to make a seamless transition into college life at LA Tech. Bridge to Bulldogs students participate in math instruction that is designed to help them achieve the required math performance for admission as a regular student. At the end of the summer program, Bridge to Bulldogs students who meet the requirements are guaranteed automatic entry into Louisiana Tech.

While completing the summer coursework, students will experience student life LA Tech through living in the apartments at LA Tech, receiving academic and social support from various offices, and partaking in the diverse range of student experiences. Bridge to Bulldogs includes dedicated academic advising, student support services and a student life component - all of which are designed to help students succeed in meeting Bridge requirements. While participating in the program, Bridge to Bulldogs students will take a class schedule designed specifically to ensure a smooth transition into LA Tech for the upcoming Fall Quarter. Bridge to Bulldogs staff, in conjunction with the Bulldog Achievement Resource Center, are committed to providing students with the educational tools and services they need to succeed.

Bridge to Bulldogs is an invitation-only program for eligible first-

time freshmen. Students who apply to LA Tech as first-time freshmen for the Fall Quarter, immediately following graduation, and do not meet University admissions standards may be invited to join Bridge to Bulldogs. Invitations will be sent to eligible students beginning in mid-spring. Invited students must confirm their acceptance to the program by July 1. This program has a limited capacity and students will enter on a first-come, first served basis.

Bridge students enroll through Louisiana Tech University and participate in a five-week program. To be admitted to LA Tech for the Fall Quarter, Bridge students are required to successfully complete the remedial Math instruction and an optional general education requirement course. Students who satisfy Bridge requirements will be admitted to LA Tech for the subsequent Fall Quarter without being required to resubmit a LA Tech admission application. Students who do not satisfy the Bridge academic requirements may be selected to continue the Bridge program by special circumstances or invited to apply for admission to LA Tech at a later date.

International Admission

All applicants whose first language is not English must take the Test of English as a Second Language (TOEFL) and score higher than 525 (70 on the internet-based test) in order to be admitted. Applicants must submit academic records from their country that are at least equivalent to the admission requirements for American students. Students who take the TOEFL are not required to take the ACT (except for architecture applicants), but it is strongly advised for placement purposes. Students from English speaking countries must take the ACT. All students must provide proof of financial support in accordance with Immigration regulations. All other Immigration and Naturalization Service requirements must be met for admission. All admitted students must have sufficient knowledge of the English language to benefit from a program of study.

Applicants from foreign countries must meet the guidelines set forth in Louisiana Tech's International Admission publication. Contact the Admissions Office for a copy.

Visiting and Special Admission

Admission under these criteria is limited to a specific program for one quarter. The student is not regularly admitted to the University, not eligible for financial aid, nor approved to pursue a curriculum. No transcripts are required; however, proof of satisfactory completion of course prerequisites is required. Transfer credit will be awarded. If at a future date the student wishes to transfer to Louisiana Tech, the regular admissions procedures and requirements must be followed.

Inter-Institutional Cooperative Program

Louisiana Tech University and Grambling State University facilitate a cooperative program, the Inter-institutional Cooperative Program (ICP), which enables free student exchange between the two institutions. This makes it possible for students to enroll for courses at both universities. Faculty exchange between the two institutions is also a part of the program.

Application for courses to be taken on the cooperating campuses must be made at the institution where admissions requirements have been met and degree programs are being pursued. Credits gained as an ICP student may apply toward a degree at the home or matriculation university. The student's divisional dean or authorized representative must approve the course or courses selected and the course load. A copy of the student's report card bearing the official seal will be furnished to the home institution at reporting time by the visited institution. Credit from the ICP classes is reported on the home school's transcript as transfer work. To be eligible to participate in the ICP program, a student must pay full-time tuition at the home institution. ICP students receive services from the Division of Student Affairs at the home institution, the institution where admissions requirements have been met and degree programs are being pursued.

(Louisiana Tech Barksdale, extension classes, and credit exams are not included in the ICP program.)

Early and Concurrent Admission

High school students may be considered for ***early admission*** to the University if the following requirements are met:

- an overall academic average of 3.0 (**B**) or better on all work pursued during 3 years (6 semesters) of high school;

  AND
- a minimum ACT composite score of 25 (1130 SAT V+M) submitted prior to June 1;

  AND
- recommendation by the high school principal.

The student may be enrolled full- or part-time. Upon earning a minimum of 24 semester hours at the University, the student is issued a diploma by the high school last attended.

High school students may be eligible for ***concurrent admission*** to the University if the following requirements are met:

- an overall academic average of 3.0 (**B**) or better on all subjects taken during the previous 2 years;

  AND
- a preferred ACT composite score of 24 (1090 SAT V+M) submitted to the University;

  AND
- recommendation by the high school principal.

The student may enroll in one University course per quarter. Upon admission to the University as a freshman, the credits earned in this program may be used to satisfy degree requirements.

Forms for these programs can be obtained through the Admissions Office.

Summer Enrichment Program for High School Students

The Summer Enrichment at Tech (SET) program is designed to enable capable high school juniors to invest the summer between their junior and senior years in University studies. For nearly 40 years, SET has been an outstanding success. Special effort is made to choose courses that will not conflict with twelfth-grade high school courses.

Grades and credits are recorded by the Registrar but will be validated to the student's transcript only after application for validation of the credits.

For more information on SET write to:
Summer Enrichment at Tech
P.O. Box 3178
Louisiana Tech University
Ruston, Louisiana 71272-0001

Summer Scholars Program

Students with exceptional academic records may participate in Louisiana Tech's *Summer Scholars Program*, which allows students who will be entering freshmen in the Fall to get an early start by enrolling in the Summer Quarter. Special scholarships are available for qualifying students. Contact the Office of Undergraduate Admissions for more information.

Summer Orientation

An orientation and registration program for all new freshmen is held each Summer preceding Fall registration. The Summer sessions, conducted by the Office of Undergraduate Admissions, are open to all beginning freshmen who have graduated in May of that calendar year and who have received official notice of acceptance to Louisiana Tech University.

The purpose of the orientation and registration program is to enable the entering student to become familiar with the University, its academic programs, and major courses of study, and to explore educational and vocational interests and goals. Each student will select courses for the Fall Quarter and complete registration, except for payment of fees.

The objectives of the program are 1) to introduce the student to

Louisiana Tech University and make the transition from high school a smooth and orderly process; (2) to provide the student with academic direction and more personal attention through faculty advising and counseling; (3) to acquaint the student with opportunities, responsibilities, and regulations of the University; (4) to register the student for classes with the exception of payment of tuition/fees (fees will be paid prior to the beginning of the Fall Quarter with the date announced at orientation); and (5) to acquaint parents with University standards for students and provide an overview of Louisiana Tech University.

Special orientation sessions for transfer students are also conducted during the summer.

Scholarships

Louisiana Tech offers scholarship awards through the Admissions Office, as well as through the academic colleges and departments. Incoming freshmen should, apply for admission by the priority deadline of January 5, to be considered for first-round scholarships. Second-round scholarships are awarded as funds are available. Transfer student scholarships will be awarded for Fall Quarter enrollment on a first come, first-served basis to admitted students with 60 or more semester hours and the appropriate grade point average. Apply for admissions at admissions.latech.edu or contact the Admissions office at (318) 257-3036. For scholarship information based on an academic major or a talent-based performance area please contact the individual college or department.

Louisiana's Residency Regulations

The residency status of an applicant or student is determined in accordance with the University of Louisiana System regulations and is based upon evidence provided in the application for admission and related documents. Residency status for undergraduate students is determined by an Admissions Officer after the completed application for admission has been submitted. Graduate students must apply through the Graduate School.

The regulations are based primarily on the location of the home and the place of employment. Residency status may not be acquired by an applicant or student while residing in Louisiana for the primary purpose of attending school.

Residency status is not determined for graduate students registered for 3 semester hours or less and undergraduate students registered for 6 semester hours or less.

All students classified incorrectly as residents are subject to reclassification and payment of all non-resident fees not paid. If incorrect classification results from false or concealed facts by the student, the student is also subject to disciplinary action.

It is the student's responsibility to provide Louisiana Tech with such evidence as deemed necessary to establish the student's residency status.

Any student classified as a nonresident may appeal his/her classification to Louisiana Tech University's Appeals Committee. An appeal form may be obtained from and submitted to the Admissions Office, Hale Hall.

If an appeal is approved, it becomes effective during the quarter in which the appeal is approved. If the appeal is the result of a mid-quarter change in status (e.g. marriage), the appeal becomes effective for the following quarter.

The following conditions may be used in determining residency status:

1. An applicant living with his/her parents is classified as a resident if the parents have established a bona fide residence in Louisiana. Ordinarily, a parent is considered to have established a residence in Louisiana if the parent actually resides and is employed full-time in the state. A parent who is unable to be employed or who is a house-spouse may be considered to have established a residence in Louisiana if there is convincing evidence that the parent continuously resides in Louisiana. If only one parent qualifies as a resident of Louisiana, the student shall be classified as a resident provided that the student resides with the parent who is a resident of Louisiana. An individual who resides in Louisiana and is employed full-time in another state may be classified as a resident. In such cases, appropriate documentary evidence must be presented.
2. A student residing with his/her parents who enrolls as a nonresident is classified as a resident if his/her parents move to Louisiana and acquire residence as defined in these regulations.
3. A student may be declared a resident if either parent is a graduate of Louisiana Tech. A student who graduates with an associate's or higher degree may be classified as a resident for subsequent enrollment at Louisiana Tech.
4. A person may be classified as a resident of Louisiana at the end of 12 consecutive months of residence if he/she has been employed full time in Louisiana, and if during that period he/she has not been registered at Louisiana Tech University for more than 3 semester hours or its equivalent in any quarter (this number of semester hours could be 6 per semester at other educational institutions in Louisiana). A person who is unable to be employed and has not been registered in any educational institution for more than 6 semester hours, or its equivalent in any semester (3 semester hours at Louisiana Tech) may acquire residence in Louisiana.
5. A student who is married to a Louisiana resident may acquire the residence status of his/her spouse.
6. A person who resides in Louisiana for at least two years, exclusive of military service, and then moves to another state or foreign country retains the right to enroll as a resident (including dependents) for a period equal to the number of years residing in Louisiana. The right shall expire upon the person's residing for a period of two years in another state or foreign country.
8. A member of the Armed Forces currently stationed in Louisiana and his/her dependents shall be classified as Louisiana residents. Service personnel who were stationed in Louisiana immediately prior to their release from active duty may enroll as Louisiana residents (including dependents), during a period not to exceed six months after the date of release provided that their term of active duty shall have been not less than 12 consecutive months.
8. A member of the Armed Forces who was a resident of Louisiana immediately prior to entering the Armed Forces retains the right for him/her or any of his/her dependents to be classified as a resident as long as he/she is in the Armed Forces and for a two-year period after leaving the Armed Forces.
9. A resident of Louisiana does not lose the right to be classified as a resident during periods of employment in a foreign country.
10. An alien who has been lawfully admitted to the U.S. for permanent residence as an immigrant (proof of such status in his/her possession of two valid forms: I-151-Alien Registration Receipt Card or passport stamp evidencing temporary Alien Registration Receipt Card) and he/she has established residence under any of the foregoing provisions shall be declared a resident of the state.

Bulldog Out-of-State Fee Scholarship

Undergraduate students who are not residents of Louisiana may apply for a Bulldog Scholarship, which covers all out-of-state fees, provided they meet the academic qualifications. Contact the Office of Admissions for more information.

Academic Renewal

Undergraduate students who have dropped out or have been suspended because of poor academic performance may request to start over with the status of an entering freshman at Louisiana Tech University under the provisions of academic renewal. The following conditions apply:

1. At least three consecutive calendar years must elapse between

the end of the quarter in which the student was last registered for credit at any college or university and being enrolled under academic renewal.

2. The student must submit a written application for academic renewal to the Academic Renewal Subcommittee of the Enrollment Management Council. This application must be received by the subcommittee by the end of the official last class day of the first quarter of attendance at Louisiana Tech. It should also indicate any circumstances that have changed since the last enrollment, which would support a reasonable expectation of the candidate's academic success. Submit the application to: Enrollment Management Council, Louisiana Tech University, P.O. Box 3178, Ruston, Louisiana 71272-0001.
3. The Academic Renewal Subcommittee will review the application and determine the candidate's eligibility for renewal prior to the end of the student's first quarter of enrollment at Louisiana Tech.
4. No prior academic credit carries forward as part of a degree program; however, the prior record remains a visible part of the student's transcript.
5. If granted, the date of academic renewal is entered upon the transcript along with a statement prohibiting use of previously earned credits and quality points to meet degree requirements, to compute the grade point average leading toward undergraduate certificates or degrees, or to determine graduation status.
6. Upon being granted academic renewal, the student has status as an entering freshman with no credits attempted and no quality points earned.
7. A student who demonstrates competency in a given area may be allowed advanced standing (without credit) or a waiver of requirements just as any entering freshman. Credit exams may be taken for courses in which grades of "**C**" or higher were earned.
8. Academic renewal may be granted to a person only once, regardless of the institutions attended.
9. Students are cautioned that many undergraduate professional curricula, graduate, and professional schools compute the undergraduate grade point average over all hours attempted when considering applications for admission.
10. Transfer students who have previously been granted academic renewal will use the application procedure described above for consideration of transfer of renewal.
11. Academic renewal does not pertain to accumulated financial aid history. Accumulated quarters and award limits include all quarters of enrollment.

Mathematics, and University Seminar Placement Requirements for English, Mathematics, and University Seminar

Placement in entry-level college courses is based on the Enhanced ACT/SAT test scores. If no scores are on file in the Office of Admissions, the score will be considered to be 0 in all areas at the time of application for admission. Registration information for the ACT can be obtained through Counseling and Career Services, (318) 257-2488

New Freshmen

Subject	Criteria	Placement
English	English ACT less than or equal to 17, or Verbal SAT less than or equal to 440	Placement in ENGL 099 or equivalent
	English ACT greater than or equal to 18 or Verbal SAT greater than or equal to 450.	Placement in ENGL 101
	English ACT greater than or equal to 30, or Verbal SAT greater than or equal to 680	ENGL 101 credit granted if English ACT/Verbal SAT score earned within the previous 5 years.

Subject	Criteria	Placement
Math	Math ACT less than or equal to 18, or Math SAT less than or equal to 450	Placement in MATH 099 or equivalent
	Math ACT 19-21 inclusive, or Math SAT 460-510 inclusive	Placement in MATH 100* or MATH 102**. No credit exam is available for bypassing MATH 100 or MATH 102.
	Math ACT 22-23 inclusive, or Math SAT 520-550 inclusive	Placement in MATH 101. Not eligible for Math Credit Exam.
	Math ACT 24-25 inclusive, or Math SAT 560-580 inclusive	Placement in MATH 101 or take and pass Credit Exam to earn credit for MATH 101.***
	Math ACT greater than or equal to 26, or Math SAT greater than or equal to 590	Credit for MATH 101 is granted if Math ACT/SAT score was earned within the previous five years. Eligible to enroll in MATH 101 or MATH or Statistics course that has MATH 101 as the only Math prerequisite. Eligible for Math Credit Exam to earn credit for MATH 112 (Trigonometry). Refer to the curriculum requirements in this Catalog to determine need for MATH 112 credit in a specific major.***.

NOTE: Permission to take a credit exam in a given course will be denied those students who have previously attempted the course and/or the credit exam. Refer to the *Louisiana Tech Credit Exam* sections of this Catalog for additional information.

*MATH 100B-C serves as a replacement for MATH 101 for students required to enroll in MATH 100.

**MATH 102 is designed for specific majors and does not serve as a replacement for MATH 100. Students should check with the academic advisor to ensure correct registration in the course required for their chosen major.

***Advance preparation for all of these exams is necessary. Various review materials are available free of charge by accessing the web site www.latech.edu/~charlesp. Select the link, "Review Materials for MATH Credit Exams". Print the instruction sheet and follow the stated instructions.

Transfer Students

Transfer students must satisfy the same placement requirements as beginning freshmen with the exception of University Seminar:

University Seminar – Transfer Student Placement

ACT/SAT Score	Placement
0-17 Reading ACT, 0-850 Verbal + Math SAT, and transferring in fewer than 18 credit hours	Option to enroll in UNIV 101 (3 credits)
18 or higher Reading ACT, 860 or higher Verbal + Math ACT, and transferring in fewer than 18 semester credit hours	Option to enroll in UNIV 100 (1 credit)
All students who transfer in 18 or more semester credit hours	Option to enroll in UNIV 100 (1 credit)

Developmental Education

A student whose ACT/SAT score does not place them in college level mathematics or English and who were admitted to the University with an Admissions Override, must register for and successfully complete their developmental courses within the first four quarters of enrollment at Louisiana Tech University. Developmental courses are those courses numbered 099 in English or mathematics. Louisiana Tech University no longer teaches 099 courses, therefore an equivalent course from a community college or other college/university must be transferred to Louisiana Tech to fulfill this requirement. Please contact the Office of Undergraduate Admissions for additional information.

A maximum of three (3) attempts (including drop "**W**" attempts) will be allowed for a developmental course. The student will be suspended from the University for failure to meet developmental course completion requirements if successful completion is not achieved after a maximum of three (3) attempts, or if the four quarter time limit is not met. Students will not be permitted to declare and register for a degree program until developmental program requirements are successfully completed.

If a student is suspended for failure to meet developmental course completion requirements, he/she may appeal for reinstatement to the Developmental Suspension Appeals Committee, chaired by the Director of the Bulldog Achievement Resource Center. If a student elects to appeal, the appeal should be submitted before the suspension quarter begins so that it can be acted upon by the Developmental Suspension Appeals Committee by noon on the day of General Registration/Fee Payment. If the appeal is approved by the Committee, the Director will notify the University Registrar and the reinstated student's registration status will be activated.

No credit is allowed in any curriculum for any courses with a catalog number beginning with 0 (e.g., English 099).

University Seminar

University Seminar 100 is a 1 semester credit hour course for entering freshmen and select transfer students. The course is designed to orient new students to the University environment and provide information about available campus resources. The course is taught by instructors from all walks of the University. Instructors present information about campus resources, time management, and academic regulations as well as lectures on a variety of topics including health, stress, safety, campus involvement, and career development.

Additionally, University Seminar 101, which is the 3 semester credit hour format, builds reading and study skills fundamentals essential for success in college.

The Honors Program

Louisiana Tech's Honors Program is designed to meet the needs of students of exceptional ability and motivation. Honors students may take special Honors classes, which are usually small and taught by some of the best and most innovative faculty. Smaller classes and challenging professors provide greater interaction between students and faculty and among the students themselves. They also make it possible for professors and students to explore topics in greater depth or at a higher level of sophistication than in regular classes. In addition to special classes, Honors students enjoy a number of privileges including priority registration, and access to social, academic, and cultural events designed specifically for them.

Honors students may also work toward formal recognition of superior achievement in two ways:

- Honors students who complete 21 hours of honors courses receive an Honors Scholar designation on their official academic transcript, an Honors Scholar certificate, and recognition for their achievement at graduation.
- Honors students may also receive Senior Honors Scholar designation by completing 9 semester hours of Honors classes at the 400-level, including a senior thesis.

Students entering Louisiana Tech as freshmen, who have a composite score of 27 on the ACT (or a comparable score on the SAT) and/or graduated in the top 5% of their high school graduating class are invited to apply to the Honors Program. Students who do not meet these requirements but who wish to join the Honors Program will be considered on an individual basis. Continuing or transfer students above the classification of freshman may apply with a cumulative GPA of 3.5 or better.

For more information, email honors@latech.edu or contact:

Director, The Honors Program
P.O. Box 10078
Louisiana Tech University
Ruston, Louisiana 71272-0001

Chapter 3 – Academic Policies

Student Classification

A ***regular student*** is one who has satisfied all entrance requirements, is qualified to pursue a curriculum leading to a degree, and is pursuing one of the prescribed curricula of the University.

A ***full-time undergraduate student*** is one enrolled in at least 8 semester hours for the quarter, excluding credit examinations and audited courses.

A ***part-time undergraduate student*** is one enrolled in fewer than 8 semester hours for the quarter.

A ***visiting student*** is one who has not been regularly admitted to the University and is not approved to pursue a curriculum. This undergraduate admission is for one quarter only. A student is not eligible to register for an additional quarter under the visiting student classification without reapplying for undergraduate admission for a subsequent quarter.

A ***transfer student*** is one who has previously enrolled at another college or university prior to enrolling at Tech.

A ***postbaccalaureate student*** holds at least one bachelor's degree from an accredited college, but has not been admitted to the Graduate School and is not pursuing a prescribed undergraduate curriculum. A postbaccalaureate student may not take classes for graduate credit, and any course taken to make up undergraduate deficiencies cannot be later transferred for graduate credit. A student who holds a bachelor's degree and is pursuing a curriculum leading to another bachelor's degree is an undergraduate regular student.

A ***graduate student*** holds at least a bachelor's degree from a regionally accredited institution (or in the case of an international student, from a recognized international institution) and has gained admission to Louisiana Tech University's Graduate School.

Classification by Hours Earned

Classification	Number of Hours Earned
Freshman	0-29 hours earned
Sophomore	30-59 hours earned
Junior	60-89 hours earned
Senior	≥ 90 hours earned

Semester Hour/Quarter Calendar

Louisiana Tech University operates on a quarter calendar, but the unit of academic credit awarded is the semester hour. This is accomplished by increasing the amount of contact time per class meeting. One and one-fourth hours (75 minutes) of recitation (class meeting) each week (total 750 minutes per term) is usually awarded one semester hour of academic credit; two 75-minute class meetings each week (total 1,500 minutes per term) yield two semester hours; three 75-minute meetings (total 2,250 minutes per term) yield three semester hours, and so on. Two or more periods of laboratory work per week are normally counted as one recitation, yielding one semester hour of academic credit. Credit for each course is described in the *Courses Descriptions* section in the back (PART IV) of this Catalog using a three-part numerical description. The first digit indicates the number of lab contact hours per week. The second digit is the number of lecture periods per week (75 minute class meetings). The final digit indicates the credit awarded for the class in semester hours. For example, the annotation 0-3-3 would mean that a course had 0 lab contact hours, 3 lecture periods per week, and successful completion of the course would yield 3 semester hours of academic credit.

Approved University Academic Calendars are published and changes updated on the University website at URL www.latech.edu/registrar/calendar.shtml

Semester Hour Load

The maximum load allowed without special permission is 12 semester hours for undergraduate students, 9 semester hours for graduate students. This also applies to a full Summer Quarter. Six semester hours are maximum for any six- or three-week session during the Summer.

A degree candidate or a student with a "**B**" average (3.0), both overall and in the preceding quarter, may be permitted to register for more than 12 hours. Students attempting to register for 13 or more semester hours require written approval from their academic dean (or the dean's designated representative) in the form of a signature and a specific approval statement on the advising form or drop/add form. Students requesting to register for more than 15 semester hours will require approval and signature from their academic dean (or the dean's designated representative) and the Vice President for Academic Affairs.

Correspondence or Internet courses and concurrent enrollments at other institutions are considered as part of this load and must also be approved by the dean.

As for a minimum load, fulltime undergraduate students must be registered for 8 semester hours. A degree candidate may carry only the courses required for graduation at the end of the quarter and still be considered a fulltime student.

A graduate student is considered full-time with 6 or more graduate hours.

Credit examinations and classes taken for audit do not count in a student's load.

Course Numbers

Courses are numbered as follows: freshmen, 100-level; sophomores, 200-level; juniors, 300-level; seniors, 400-level; graduate students, 500- & 600-level. Developmental courses with a catalog number beginning with zero (e.g. ENGL 099/LCCN CENL 09xx; or MATH 099/CMAT 09xx) will not be counted toward an academic degree.

Students with a Freshman or Sophomore classification are not eligible to register for 400-level (Senior) courses without the written approval of the academic dean (or the dean's designated representative) of the college responsible for that specific subject and course.

Certain 400-level courses may be taken by graduate students for graduate credit; in such cases, graduate students complete additional research assignments of graduate-level rigor. The letter '**G**' in parentheses, **(G)**, appears at the end of those 400-level undergraduate course descriptions which are approved for graduate level work. When taught for graduate credit, those courses are taught by Graduate Faculty.

Only students admitted to the Graduate School may enroll in 500-, 600-, and 700-level courses.

Registration and Advisement

Students may attend class only after completion of advisement and registration, which includes payment of tuition and fees. Registration days and detailed registration and tuition/fee payment procedures are contained in the *Schedule of Classes* published online at URL www.latech.edu/registrar/racingform.shmtl each quarter. Students use their Bulldog Online Student System (BOSS) account to complete online registration and tuition/fee payment.

Students who are currently enrolled are expected to register for the next quarter during the early registration period conducted the last three weeks of each quarter.

New students and readmitted students will complete advisement, registration, and tuition/fee payment during the General Registration period that usually begins the day after Purge #1 each quarter.

Late Registration (also known as the "no-grade" Drop/Add period) is allowed during the first three regular class days. A Late Registration fee is assessed during this period. Students who have registered may also add or drop classes (adjust schedules) during these three days.

Students who are selected for participation in forensics, band, choir, chorus, orchestra, and private music lessons after the final day to add a class may still be allowed to add the activity by obtaining their dean's written permission. Such course additions will be considered only during the first four weeks of the quarter.

Department heads or appointed faculty members advise during the scheduled registration advisement period; however, the student should be well acquainted with his/her particular curriculum, as well as any special advising and registration requirements of his/her department or college.

Students are responsible for taking the courses required in their cur-

riculum as they are offered and are responsible for completing any prerequisites that are required.

Class Attendance

Students and Faculty will use **Louisiana Tech University Policy 2206 – Class Attendance**. This policy applies to both undergraduate and graduate students.

Student Responsibilities

Upon registration, students accept the responsibility to attend regularly and punctually all classes in which they are enrolled. Failure to do so may jeopardize a student's scholastic standing and may lead to suspension from the College or University. As University policy, a course instructor may recommend to the student's academic dean that a freshman or sophomore student be withdrawn from the rolls of the class if the student amasses excessive unexcused absences (more than 10% of total class time).

The student is responsible for making arrangements satisfactory to the instructor regarding absences including prior notification of planned absences, providing documentation if needed, and making up of examinations and work as required. For other emergency absences, the student shall submit excuses for class absences to the appropriate instructor within three class days following the student's return to his/her respective class. For classes which meet once a week, the excuse shall be presented no later than one calendar week following the student's return. The Registrar's Office does not issue excuses.

Faculty Responsibilities

It is the responsibility of the individual instructor to establish a specific policy regarding class attendance. Faculty members are required to state in writing to the students their expectations in regard to class attendance at the beginning of the term (no later than the close of the drop and add period). Each instructor shall keep a permanent attendance record for each class. These records will be used to verify attendance to the Office of Financial Aid as required. The records are subject to inspection by appropriate College or University officials. As University policy, a course instructor may recommend to the student's academic Dean that a freshman or sophomore student be withdrawn from the rolls of the class if the student receives excessive unexcused absences (more than 10% of total class time).

In accordance with the instructor's written policy, the course instructor will determine the validity of a student's reason(s) for absences and will assist those students who have valid reasons. Examples of valid reasons for consideration of absences include:

1. Illness
2. Serious family emergencies
3. Special curricular requirements such as judging trips or field trips
4. Court-imposed legal obligations such as subpoenas or jury duty
5. Military obligations
6. Serious weather conditions
7. Religious observances (Faculty are to assist students whose religious beliefs require their absence from class in order to exercise those beliefs so that they are not penalized.)

Official University Excuses

Official University Excuses must be presented to the faculty member by the student prior to the absences and will be accepted as excused absences.

Group activities which conflict with scheduled classes may be sponsored (1) by the academic department and approved by the academic dean using the adopted form "Official University Excuse" found at www.latech.edu/administration/policies-and-procedures or (2) through the university athletic absence process. The sponsor will provide a copy of the documentation to the student(s) for presentation to respective instructor(s). Official University Excuses may be approved only in the following circumstances:

A trip by a group of students in fulfillment of class or departmental requirements and the University controls time, route, and mode of travel.

Travel by an individual or non-class group for the purpose of representing the University and the University controls the time, route, and mode of travel (Athletics and athletic support groups as examples).

Authorized special duties at the University: (examples, ROTC students required participation, Band members required participation in on-campus events).

University Excuse Appeals Process

If a student believes he/she has been treated unreasonably because of participation in a University authorized activity, he/she can appeal using the following sequence of appeal to (1) individual faculty member, (2) departmental chairperson and (3) the appropriate college dean (college offering the course). The decision of the dean is considered final. The sponsor of the activity will assist the student with the appeal and provide evidence of proper documentation and faculty notification of the class absence(s) in question.

Dropping a Course

To drop a course a student must have the consent (signature) of his/her academic advisor or department head on the proper Drop/Add form and the form must be processed through the Registrar's Office. The "**W**" grade is assigned when a student drops an individual class after the final date for late registration (third class day) has passed and before the end of the first eight weeks of a quarter. After that published date, dropped courses are assigned an "**F**" grade. The deadline for dropping a class with a "**W**" grade is listed in the University Academic Calendar published on the University website: www.latech.edu/registrar/calendar.shmtl

A student may be administratively dropped from a class, or more than one class, or from the rolls of the University, if his/her academic dean considers such action to be in the best interest of the class or the University. In such a case, the dean will decide whether the student will be assigned a "**W**" or "**F**" grade.

Resigning From the University

To resign from Louisiana Tech University, a student obtains a resignation card from the Registrar's Office, obtains the applicable signatures listed in the instructions on the card, and then returns the card to the Registrar's Office for final processing. The TECH I.D. card should be turned in to the Tech Express Office, located in the Student Center. A resignation is not official until the required card is processed in the Registrar's Office. When a student resigns before the close of Late Registration, the permanent record will reflect only that he/she registered and resigned. When a student resigns during the first eight weeks of the quarter, the grade of "**W**" will be assigned. A grade of "**F**" for each class will be recorded for any student who leaves without following resignation procedures. A student living in the dormitories or housing who leaves without proper resignation will forfeit the unused portion of any payment or deposit made to the University.

Appeal Process for Course Drop/ Resignation after the End of the Eighth Week

Approval of an appeal for dropping a course or resigning after Friday of the Eighth Week of the Quarter may be granted by the student's academic dean only for a documented reason which prohibited accomplishing the process before the quarterly deadline and/or the completion of the course(s).

The student will initiate the appeal request in writing with their academic dean. After review, and with the dean's written approval, a grade of "**W**" (or resignation with "**W**" grades) will be assigned. Examples of cases eligible for appeal are illness or injury to student (with medical documentation), death in student's immediate family, military duty (with a copy of official mobilization/deployment orders), or a natural disaster. Extraordinary cases do not include dissatisfaction with an anticipated grade, a belated decision to change a major, ignorance of or failure to follow University policy and procedure.

If a student believes there is a discrepancy in the resignation date entered, the student will initiate a written appeal with their academic dean. This written appeal must contain a written account of what discrepancies may exist and provide documentation to support the date change appeal. The academic dean will review the entire written appeal, and review any school-based documentation. School-based documentation

includes: student registration audit trail, status notifications sent to the student from financial aid, comptroller, or registrar, and any other variables of relevance to the written appeal (e.g. medical or legal). The academic dean will make the final determination and will notify the student in writing, with a copy of the decision provided to the registrar for any archive and actions or changes.

Repeating a Course

All attempts at a repeated course will be computed into the cumulative grade point average. For courses that cannot be repeated for credit, only the last attempt is computed into the total hours ***earned***. Students who earn an "**F**" in a course must repeat the course with a passing grade in order to earn credit. (See *Graduation Requirements* and *Academic Standards* for an explanation of the method by which quality points are used in determining averages for graduation and for probation and suspension.) The last attempt of a repeated course is considered as the final grade.

Auditing a Course

To audit a course, the applicant must be eligible for admission to the University in one of the stated admission categories for undergraduate or graduate students. Permission to audit a physical education activity class must be obtained from the Kinesiology Department Head. A student auditing one or more classes must follow the regular registration procedure and notify the University Registrar's office of their intent to "audit" the course prior to the end of the drop/add period (first three days of class).

Students auditing courses will be charged the same amount of tuition and fees as students taking the course for credit. Hours taken for audit are not factored into a student's full time load, are not used to verify full-time enrollment, are not calculated into the GPA (quarterly or cumulative), and are not eligible for use in President's or Dean's List determinations.

The auditing student is not required to do the work of a regular student; however, a reasonable amount of class attendance is expected if the audited course is to appear on the student's permanent record. An audit may not be changed to credit, or vice versa, after registration closes (end of late registration).

Changing a Major

To change an academic major, the student should follow this procedure:

Changing a Major - Online Form and Instructions:

- Go to Louisiana Tech's web site www.latech.edu.
- In the red bar, click on "Students"; and then select "Registrar".
- Click on the "Academic Major Changes" menu item.
- Print out the form, and follow the instructions provided. Once the student has obtained the signatures, return the form to the Registrar's Office (KEEH 207). The Registrar's staff will complete Student Information System changes.

Changing a Major in Person:

- Come to the Registrar's Office (KEEH 207), and pick up an Academic Major Change form.
- Obtain the signatures required.
- Return the form to the Registrar's Office. The Registrar's staff will complete Student Information System changes.

Change of Address/Phone Number

Students are responsible for keeping the University informed of address, telephone number, and personal e-mail changes as soon as they occur. Current students can make these changes online via his/her Student BOSS account or by loading and updating Emergency Notification System (ENS) information. See the ENS information contained on the University website at URL www.latech.edu/administration/ens.php. These changes can also be made in writing at the Registrar's Office (Keeny Hall 207).

The University will consider all correspondence mailed to a student at the address currently on file to have been received, unless it is returned to the sender.

Veteran's Certification

Louisiana Tech University provides Veteran's liaison service with the Veteran's Administration (VA) for students eligible to receive VA educational benefits. Those VA students attending classes taught at the main campus in Ruston are certified by the Veteran's Certifying Official located in the Office of the University Registrar, Keeny Hall Room 207. VA students attending courses taught at TECH – Barksdale AFB are certified by the Veteran's Certifying Official located in the TECH – Barksdale AFB Office, located in the Education Services Building on Barksdale AFB, Bossier City, LA.

Credit by Examination and Other Non-University Sources

Louisiana Tech University believes that students possessing knowledge equivalent to that attained in a specific course should be advanced to the next course level so that a continuous educational challenge is provided. There is no requirement as to where and how the knowledge was acquired. Certain policies and procedures have been adopted by the University in fulfillment of this philosophy. All attempts are transcribed, and unsuccessful attempts are not counted against the student. Application of credits toward a degree is determined by the student's curriculum. Credit by all types of examinations collectively may not exceed 60 semester hours.

The University provides for credit through the Advanced Placement Program, various Credit by Examination programs, credit for military experience, and credit through the DANTES program.

A student will not be allowed to receive credit by examination or from other non-University sources if he/she has previously registered for the course. In each case, students should check with their curriculum advisor, department head, or dean to ensure the credit will be acceptable as a substitute for the course in their curriculum.

Advanced Placement (AP) Program Credit

The University recognizes college-level courses taken in secondary schools under the College Board Advanced Placement (AP) program. Students who have completed these tests should have their scores sent to the Admissions Office. Students may earn up to 30 semester credit hours through the AP program. Go to the following web site for credits you may earn:

www.latech.edu/admissions/freshman/advanced_placement.

The College Level Examination Program (CLEP) Subject Examinations

A student may gain college credit in a number of subjects by achieving the recommended score for credit at Louisiana Tech. The CLEP is administered nationally by Educational Testing Service (ETS). Applications for CLEP subject exams may be obtained from any test center participating in the program. The exams are given on main campus by appointment, Monday – Friday, in the Testing and Disability Services Office located in Wyly Tower Room 318. Scores are reported by ETS through its transcript service. Students should check with their academic dean or department head to ensure credit earned from the CLEP exam will be an acceptable substitute in their degree curriculum. A student will not be allowed to receive credit based upon the CLEP subject exam if he/she is currently or has previously registered for the course. Credit by CLEP exams is limited to 30 semester hours. A list of available examinations can be found on the College Board's website: www.collegeboard.com.

Louisiana Tech Credit Examinations

Credit examinations are administered in some subject areas for the benefit of the student who believes he/she has already attained the level of knowledge required in the course(s). The procedure for registering for credit by examination is as follows:

Students may register for credit by examination in any approved course, but only during regular registration periods. No exam can be given to a student who has not properly registered for the exam. Permission to take a credit exam in a given course is denied to students who previously attempted the course for credit, earned credit in a higher

sequence course, or did not receive approval from the department head responsible for the course.

Each credit by exam has a section number of E01 and will be entered on the student's registration form or added during the "add period." Regular University tuition/fees will apply for billing purposes.

The student's registration record will reflect the credit by exam course(s) for which the student registered; these courses will not, however, be added into the total semester hour load of the student for determining "fulltime" status, but will be counted for the purpose of determining fees.

Exams are administered according to the times listed in the *Schedule of Classes* or times assigned by the department head. Exams are normally scheduled during the first three class days of a quarter.

Successful completion of an exam will be recorded on the permanent academic record as "credit exam" with a grade of "**S**" (Satisfactory). Grades of "**S**" are not used to compute the grade point average. The grade of NC (No Credit) is loaded if the student does not take or does not pass the credit examination. The NC denotes no credit earned and is not used in the GPA calculations.

Credits earned through this type of exam are limited to 30 semester hours on a student's degree plan.

Mathematics Credit by Exam

Credit for Math 101 is granted for each student with a Math ACT score greater than or equal to 26 or a Math SAT score greater than or equal to 590 if the Math ACT/SAT score was earned within the previous five years.

Credit for Math 101 or Math 112 is granted to each student who is eligible for and successfully completes the Credit Exam for the course. See the *Placement in Mathematics and Statistics* section of this Catalog for eligibility requirements for each exam.

Credit Based on Military Experience

Honorably discharged members of the U.S. Armed Forces may be allowed credit for physical education upon presentation of a copy of their discharge, DD 214, to the Veteran's Liaison Counselor, located in the Registrar's Office.

Additional credit may be granted for course work completed in service schools where equivalence in terms of college courses has been recommended for college credit in the *Guide to the Evaluation of Education Experience in the Armed Services*, published by the American Council on Education. Official military service documents must be transmitted electronically to the Office of the Univesrity Registrar for an evaluation of these experiences. For veterans of the Army, Navy, Marines, and Coast Guard, the Joint Services Transcript (JST) is the instrument of choice. Veterans of the Air Force will use the Air University's Community College of the Air Force (CCAF) transcript. Students should check with their curriculum advisor, department head, or dean to ensure the credit will be acceptable as a substitute for the course in their curriculum.

Credit through DANTES

Louisiana Tech University is a participating institution with the Defense Activity for Non-Traditional Education Support (DANTES) program. Credits earned are recognized by the University in accordance with the recommendations of the curriculum in which the student enrolls and must not duplicate other college credits earned.

A student will not be allowed to receive DANTES credit if he/she is currently enrolled in or has previously registered for the course. Students should check with their curriculum advisor, department head, or dean to ensure the credit will be acceptable as a substitute for the course in their curriculum.

Campus-Wide Identification (CWID) Number

Louisiana Tech University uses a Campus-Wide Identification (CWID) number as the primary means of identifying students. Although the student's social security number is still a required element of University student academic and financial information, it is not used as the primary means to positively identify students in the Student Information System. Access to the student's social security number is restricted to a very limited number of financial aid, comptroller, registrar, and student affairs administrators.

All student products, to include their Student ID Card (*Tech Express Card*) use the CWID. This 8-digit number is provided to the student at official notification of admission and remains with them permanently. The CWID is a non-sequential, machine generated number that does not mimic numbering sequences from the student's social security number.

While the CWID is designed to provide additional protection for students against identity theft, the CWID itself should be afforded the same type of protection as the social security number.

Bulldog Online Student System (BOSS)

BOSS provides each student with a unique account that allows the student to access their academic records and demographics in the Student Information System via the web. Each student is provided with a unique Personal Identification Number (PIN) known as a BOSS PIN that, when used in conjunction with their student identification number (CWID), provides private access to items such as transcripts, grades, web registration, web tuition/fee payment, and numerous demographic and student service menu items. Some of the demographic categories allow for changes to be made online, such as updates to emergency contact information for the Emergency Notification System (ENS).

New undergraduate and graduate students receive their CWID and BOSS PIN immediately following admission to Louisiana Tech University. This notification takes the form of an e-mail to the e-mail account they load on their application, and also on the letter of acceptance received from Undergraduate Admissions or Graduate Admissions as appropriate. Undergraduate students will receive a printed reminder of their CWID and BOSS PIN and their TECH e-mail USERID while attending Orientation.

If the student does not attend Orientation, is a new graduate student, or an online only program student, they will also receive their CWID and BOSS PIN immediately following admission to Louisiana Tech University via e-mail and a letter of acceptance from the appropriate admissions office. These new students should follow the instructions found on their notifications that will direct them to appropriate TECH web site areas for obtaining support in setting up their account.

For their own privacy and protection, students should not give out their TECH USERID, password, Campus Wide Identification (CWID) - student identification number, or BOSS PIN to anyone.

The University will only e-mail reminders of the BOSS PIN to the student's TECH e-mail account. The University will not e-mail these elements to commercial ISP accounts without first receiving a signed written release authorizing the University to e-mail or FAX the PIN to an account/number of the student's specification. If a student "pops" their e-mail from their TECH account to a commercial ISP account, the student assumes personal responsibility for the protection of their private information.

The University strongly suggests that students change their BOSS PIN (BOSS menu option "Change PIN") to an alpha/numeric sequence only they know (and can readily remember).

TECH E-mail

Louisiana Tech University provides each enrolled student with a TECH e-mail account. **TECH faculty and administrators use this e-mail account as one of the primary means for communicating with the student body, other faculty, and other staff.** Faculty members and administrators use this account to transmit private information to a student through the University's information security mechanisms; information that will not be transmitted through commercial ISP accounts for security reasons.

Students are encouraged to activate and use their TECH e-mail account as soon as possible after registration and tuition/fee payment and to check their e-mail account daily. USERID and password information is available at URL helpdesk.latech.edu/ or at the University Computing Center (Basement, Wyly Tower of Learning).

Chapter 4 – Academic Standards
Matriculation, Status, Grading, and Graduation

General Education Requirements (GER)

Louisiana Tech University has chosen to strengthen undergraduate education by requiring each curriculum to include a core of general education requirements.

ASSOCIATE DEGREE (GER):

ENGLISH (GER).....6 Hours
Freshman Composition (English 101 and 102)
MATHEMATICS (GER) .....6 Hours
Math 100 or above and one additional 3-hour course in Mathematics or Statistics.
NATURAL SCIENCES (GER) .....6 Hours
Life Science (Biology, Biochemistry, Botany, Zoology)
Physical Science (Chemistry, Physics, Geology)
HUMANITIES (GER).....3 hours
History, Literature, Speech, Languages (above the introductory level), Philosophy, English
FINE ARTS (GER) .....3 Hours
Must be taken from courses such as: Art 290: Art Appreciation; Kinesiology 280: Dance Appreciation; Music 290: Music Appreciation; Speech Theatre 290: Theatre Appreciation
SOCIAL/BEHAVIORAL SCIENCES (GER).....3 Hours
Economics, Geography, Anthropology, Political Science, Psychology, Sociology
TOTAL.....27 Hours

BACCALAUREATE DEGREE (GER):

ENGLISH (GER).....6 Hours
Freshman Composition (English 101 and 102)
MATHEMATICS (GER) .....6 Hours
Math 100 or above and one additional 3-hour course in Mathematics or Statistics.
NATURAL SCIENCES (GER) .....9 Hours*
Life Science (Biology, Biochemistry, Botany, Zoology)
Physical Science (Chemistry, Physics, Geology)
*Must include both physical and life science with at least 6 hours from a two quarter sequence.
HUMANITIES (GER).....12 Hours
History**, Literature**, Speech**, Languages (above the introductory level), Philosophy, English*
*Must include at least 3 hours at the 200-level or above.
**Minimum of 3 hours required.
FINE ARTS (GER) .....3 Hours
Must be taken from courses such as: Art 290: Art Appreciation; Kinesiology 280: Dance Appreciation; Music 290: Music Appreciation; Speech Theatre 290: Theatre Appreciation
SOCIAL/BEHAVIORAL SCIENCES (GER).....9 Hours*
Economics, Geography, Anthropology, International Studies, Political Science, Psychology, Sociology (*Minimum of two disciplines)
TOTAL.....45 Hours

International Education Requirement (IER)

The Board of Regents and the University International Education Committee has adopted an international education requirement to insure that students gain exposure to and appreciation of the history, culture, and political institutions of other nations. These courses are to help the students gain a greater understanding of the world in which they must live and compete.

Each Louisiana Tech University student, prior to graduation, must complete at a minimum one 3-hour course which has been identified as satisfying the international education requirement.

The following courses have been reviewed and approved by the International Education Committee to meet this requirement:

- Accounting 485;
- Economics 485;
- English 426, 427, 428, 456;
- Finance 485;
- Forestry 430, 431
- French 428;
- Geography 205, 210, 331;
- History 102, 404, 408, 410, 420, 436, 441, 442, 444, 447;
- Management 485;
- Marketing 485;
- Political Science 302, 325, 327, 350, 355, 460, 465;
- Spanish 426, 427.

Course descriptions are available in PART IV of this Catalog and the courses are designated with the symbol (IER) that indicates they meet the international education requirement.

Academic Status

There are three categories of academic status for undergraduate students: ***academic good standing*** and eligible to be enrolled; ***academic probation*** and eligible to be enrolled; and ***academic suspension***, therefore not eligible to be enrolled. Although students will usually receive official notification of academic status, such notice is not a prerequisite to students being placed in one of the above categories. Students have the responsibility to learn their academic status prior to the beginning of the next enrollment period.

Good Standing

All undergraduate students are expected to achieve and maintain a minimum cumulative GPA of at least 2.0 **(C)** on all college work attempted and on all work attempted at Louisiana Tech. The University will, however, certify a student to be in "good standing" as long as that student is eligible to be enrolled. There are some degree programs that specify higher GPA requirements for good standing, eligibility for entry into an upper division, and/or eligibility for graduation in the program. Specific GPA requirements can be found in the curriculum descriptions contained in the college/department/degree found in the undergraduate program pages of this catalog or through the individual departments.

Academic Probation

Undergraduate students will be placed on academic probation whenever their cumulative grade point averages (GPAs) are below a 2.0 average.

1. Once on academic probation, a student will remain on probation (as long as each quarter or summer session average is at least 2.0) until the cumulative GPA of 2.0 or higher is achieved.
2. Once a cumulative GPA of 2.0 or higher is achieved, a student will be placed in academic good standing.
3. Transfer students may be admitted on probation pending receipt of official academic transcripts to determine actual academic status.

Academic Suspension

Undergraduate students on academic probation will be suspended at the conclusion of any quarter, including summer, in which they fail to earn a GPA of at least 2.0. First-time freshmen admitted in good standing will not be suspended prior to the completion of three quarters of enrollment.

1. The period for the first suspension will be for one quarter. Students suspended for the first time at the end of the spring quar-

ter may attend summer school without appeal. If these students raise their cumulative GPA to 2.0 or higher, they are placed in academic good standing and their suspension periods are lifted. They may then attend the fall quarter without appeal. If they do not raise their cumulative GPA to 2.0 or higher in the summer session, the suspension for the fall quarter is in effect. In this case, only one suspension is counted against the student.

2. All subsequent suspensions will be for one calendar year. Students suspended for a second or subsequent time at the end of the spring quarter may also attend summer school. To be readmitted to any quarter, other than the summer session, they must follow the Readmission from Suspension procedures below.
3. All Universities within the University of Louisiana (UL) System have a one term (quarter or semester) suspension, except for second or subsequent suspensions that shall be for one calendar year.
4. An undergraduate student suspended from a UL System university may not enroll in another university within the UL System, but may enroll in a community college. To ensure minimal or no loss of credits upon return to the university, the student should consult with his/her university advisor regarding the choice of courses to be taken at the community college. Credits earned under these conditions may be accepted for a degree at the suspending institution provided grades of "**C**" or higher are earned in each of the courses to be transferred.

Readmission from Suspension

Appeal for reinstatement after academic suspension may be made to the student's academic dean or to the Director of Basic and Career Studies, as appropriate. Appeals must be accomplished no later than noon on the day prior to the first day of classes (General Registration/ Fee Payment/2nd Purge day).

If reinstatement is approved, the dean notifies the University Registrar and the reinstated student's registration status is reactivated and their preregistered schedule retained. Reinstated students will be continued on academic probation.

If reinstatement is denied, or the student did not appeal, the student's preregistered schedule will be purged on the afternoon of General Registration/Fee Payment/2nd Purge Day.

Degree Programs

Louisiana Tech University is authorized to confer two associate degrees, five baccalaureate degrees and fourteen graduate degrees.

The associate degrees are: Associate of General Studies (available through Barksdale Air Force Base only), and the Associate of Science Nursing (available through main campus only).

The baccalaureate degrees are: Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Interior Design, Bachelor of Science, and Bachelor of General Studies.

The graduate degrees are: Master of Architecture, Master of Arts, Master of Science, Master of Business Administration, Master of Professional Accountancy, Master of Fine Arts, Master of Education, Master of Arts Teaching, Master of Health Informatics, Doctor of Audiology, Doctor of Business Administration, Doctor of Philosophy, Doctor of Education, and a joint PhD/MD with Louisiana State University Medical Center -Shreveport.

Majors

A major is that part of a degree program which consists of a specified group of courses in a particular discipline or field. The name of the major is usually consistent with the degree subject area. A major usually consists of 25% or more of total hours required in an undergraduate curriculum. At Louisiana Tech University, the available majors are assigned to one of the five colleges within the University and administered by a department or school within that college. The charts on pages viii – x in the Preface depict the undergraduate majors available by college. Detailed undergraduate curriculum for each major are depicted within the college and departmental pages in this catalog.

By the end of the student's sophomore year, he/she should have an idea of what discipline they choose to major in and should declare a major in that discipline. Students experiencing uncertainty in this area should contact the Director of Advising and Retention for assistance with this matter.

Majors are indicated on the student's transcript. Students may complete more than one major. However, the student should check with his/her academic advisor and with the University Registrar to determine whether the major combination he/she is interested in is approved for conferral before beginning the additional course of study.

Undergraduate major changes are accomplished using an approved Major Change form available on-line (www.latech.edu/documents/major-change.pdf) and at the Registrar's Office (Keeny Hall 207). The Change of Major form must be signed by the student and both the current and new academic departments. The change will be effective on the date of submission to the Registrar's Office. Those forms received after the last day of classes of the current quarter will become effective the following quarter.

Minors

A minor is that part of a degree program which consists of a specified group of courses in a particular discipline or field, consisting usually of 15% or more of total hours required in an undergraduate curriculum. A minimum of 40 to 60% of the minor courses are at the 300- to 400- level. Minors may be offered in various departments at Louisiana Tech. Refer to college and departmental sections for information on available minors. Minors should be determined no later than the junior year (completed 60 hours) at which time the student's minor plan is documented and placed in the student's departmental major folder. Progress toward completion of minor requirements is monitored by the student's major advisor. Approval and certification of minors are the responsibility of the student's major college. Minors are indicated on the student's transcript. Students may complete more than one minor.

Some, but not all, of the undergraduate majors require a minor. Students should check their major curriculum for specific instructions.

*A student must earn a grade of "**C**" or better in each course applied toward meeting the requirements of a minor.*

Curriculum Matriculation

1. Students in Basic and Career Studies (undecided) and those students entering specific colleges from Basic and Career Studies will follow the curricula in effect at the time of their admission to the University, as long as the students are pursuing their degrees on a continuing basis.
2. Students transferring from one college to another on campus or those transferring from other institutions will follow the curriculum and catalog in effect at the time of transfer/transfer admission.
3. Students who change their major must follow the curriculum and catalog in effect at the time of the major change.
4. Students may follow an updated curriculum that becomes effective while in a program of study; however, mixing of curricula is not permitted in satisfying requirements for graduation.
5. Students who interrupt their studies and do not enroll for one or more quarters (excluding the Summer Quarter) must be readmitted to the University and are required to follow the curriculum and catalog in effect when they return to the institution.

Louisiana Statewide Articulation

Louisiana Tech participates in the statewide Articulation Policy as adopted by the Board of Regents. The aim of this policy is to ensure that transitions which students may encounter in their educational career will be orderly. Pursuant to ACT 383 of the 2003 Louisiana Regular Legislative Session, Louisiana Tech University actively participates in the Statewide Student Transfer Guide and Articulation System Matrices (Board of Regents' E-matrix). These matrices indicate

transfer equivalencies of courses among Louisiana's public colleges and universities and may be accessed through the Board of Regents' web page at www.regents.state.la.us. This site lists courses that are acceptable for academic credit in general and for credit toward meeting degree program requirements at Louisiana institutions. Course descriptions listed in the back of this catalog that fall within the purview of E-matrix are indicated by an asterisk in the definition and a written reminder found in the footer of each of those course description pages. Students should be aware that the E-matrix course listings are not all-inclusive. There are courses that articulate between campuses that are not listed in the matrices. Questions regarding transferability of credit should be directed to the Office of Undergraduate Admissions at Louisiana Tech University (318-257-3036 or Bulldog@LaTech.edu.

Grading System

Official grades are maintained in the University Registrar's Office. Louisiana Tech applies a traditional system of grading and awards quality points for grades earned. An "**A**" is awarded for the highest degree of excellence that is reasonable to expect of students of exceptional ability and application. A grade of "**B**" is superior. A grade of "**C**" is average. A grade of "**D**" is given for a quality of work that is considered the minimum for receiving credit for the course. A grade of "**F**" is given for a failure, and the work must be repeated to receive academic credit. The University's grading system is as follows:

Grade	Number of Quality Points:
A	4 quality points per semester hour
B	3 quality points per semester hour
C	2 quality points per semester hour
D	1 quality point per semester hour
F	0 quality points per semester hour
I	Incomplete (see explanation below)
S	Satisfactory (see explanation below)
W	Withdrew (see explanation below)
NC	No Credit (see explanation below)

Definition of the Incomplete (I) Grade

The grade "**I**" (Incomplete) is used to denote failure to complete all assigned class work and/or exams as a result of conditions beyond the student's control. It is the responsibility of the student to initiate a request with the instructor that a grade of "**I**" be issued. If the student's work is of passing quality, the instructor may approve the student's request and will assign a grade of "**I**" plus the letter grade that represents the student's overall performance in the course to that point (e.g. "**IA**", "**IB**", "**IC**", or "**ID**"). A grade of "**IF**" cannot be issued. If the instructor agrees to issue an "**I**", he/she will complete a standard contract with the student detailing requirements for course completion and specifying the date those requirements must be finished. Instructors then provide a copy of the contract to the student and a copy to the department head/director. Students will receive a grade of "**IA**", "**IB**", "**IC**", or "**ID**" for that quarter. Incompletes are factored into hours attempted and quality points awarded. Therefore, they impact a student's quarter and cumulative grade point averages and are a factor in academic probation or suspension decisions.

The maximum amount of time allowed for a student to finish incomplete work is Friday of the fourth week in the following quarter, with one exception: students receiving an "**I**" in the Spring Quarter have until Friday of the fourth week in the following Fall Quarter to complete their work. A reminder of this date is published in the academic calendar each quarter and can also be found on the academic calendar at Tech's web site www.latech.edu.

If the student does not complete the required work within the contracted period, the instructor will change the "**I**" grade to an appropriate letter grade by delivering a final grade change to the Registrar's Office by Friday of the fifth week of the quarter. The final grade replaces the "**I**" on the student's permanent record (transcript); attempted hours, earned hours, quality points, and quarter/cumulative grade point averages are recalculated applying the final grade. A student may be placed on or removed from academic probation or suspension based on the recalculated GPA at the time the "**I**" grade is cleared. "**I**" grades are cleared only by completing the required course work, and not by registering for the course again.

NOTE: Students registered for approved research, practicum, dissertation, or thesis courses requiring multiple quarters of the same course registration to complete the research receive the "**I**" for each attempt until the research or practicum is accepted as complete by the advising faculty member. At that time, the graduate student's "**I**" grades are changed to "**S**" grades on his/her permanent record. Graduate students should refer to additional discussion of "**I**" grades found in Chapter 15 of this catalog.

Definition of the Satisfactory (S) Grade

A grade of "**S**" indicates satisfactory completion of a course. The "**S**" grade increases hours earned but does not affect hours attempted or quality points and is not computed in any grade point average (GPA). Students registered for a course where the grade of "**S**" is used who do not complete the required course work will receive the grade "**F**".

Definition of the Withdrew (W) Grade

A "**W**" is issued when a student withdraws from a class (drops a class) after the final date for registration has passed and before the end of the first eight weeks of a quarter. The "**W**" grade will appear on the student's permanent record (transcript), but is not included in computing the student's GPA. ***Students who stop attending class(es) without following proper drop/withdraw or resignation procedures (walk-aways) will receive an "F" grade for each class affected.***

Definition of the No Credit (NC) Grade

The grade NC denotes no credit earned or hours charged and is not computed in any GPA calculation.

Calculating Grade Point Average (GPA)

Academic grades are grouped by career (Undergraduate, Graduate, or Graduate Certificate) based on specific course work, and academic grade point averages are not combined.

The Quarterly GPA

A student's ***quarterly grade point average (GPA)*** is obtained by dividing the sum of the quality points earned for the quarter by the number of semester hours attempted that quarter.

The Cumulative GPA

The ***cumulative GPA*** is determined by dividing the total quality points earned by the total number of hours attempted. Cumulative GPA is the benchmark figure used to determine undergraduate academic honors, undergraduate degree class standing at graduation, academic probation, and academic suspension. Quarterly and cumulative GPAs are recorded on the student's permanent academic record (transcript) and reported each quarter with their grades.

The Earned GPA

The University of Louisiana System Board of Supervisors permits member universities to use the ***earned GPA*** (when necessary) to determine eligibility for entry into specific upper division undergraduate courses, eligibility for progress into and completion of a certification program, eligibility for a practicum, and most importantly eligibility for receipt of an undergraduate degree.

An ***earned GPA*** is computed by dividing *adjusted* quality points by *adjusted* quality hours.

- Adjusted quality points are computed by subtracting quality points received for repeated classes from total quality points.
- Adjusted quality hours are computed by subtracting credit hours for "**F**" grades and repeated classes from total quality hours.

The earned GPA is calculated and maintained by the academic department involved and maintained with the department's/advisor's copy of the student's curriculum sheet. Earned GPAs are not main-

tained in the Student Information System as part of a student's electronic file and are not reported with grades or on the academic transcript.

Grade Reporting

Students view final grades on their Student BOSS account (menu options "Grades" or "Unofficial Transcript") at the end of each quarter. Specific instructions for access are published quarterly in the *Schedule of Classes* found at www.latech.edu/registrar/grades.shtml and in reminders provided by the University Registrar's Office during early registration. Students needing a copy of their grades after the reporting period may obtain them thru BOSS either by printing a copy of their unofficial transcript or requesting an official transcript.

Final Grade Appeals Procedure

A final grade in a course represents the cumulative evaluation and judgment of the faculty member placed in charge of that course. If a student thinks the final grade in a course was not determined in accordance with University policies or was determined arbitrarily, the student may appeal by adhering to the following procedure:

1. Confer with the faculty member immediately, clearly setting forth all points of concern. If unsatisfied with the results of the conference, proceed to the next step.
2. Confer with the head of the department in which the course is taught, clearly setting forth all points of concern. If the student remains unsatisfied, proceed to the next step.
3. Write a letter of appeal to the dean of the college in which the course is taught. The dean will send copies of the letter to the faculty member and department head. This letter must be:
   - received by the dean within the first 10 regularly scheduled class meeting days of the term immediately following the term in which the appealed grade was received; and,
   - an accurate and complete statement of all facts pertaining to the matter. Falsification may result in disciplinary action.

The dean may make a decision, which would be final in the matter, or refer the appeal to the college's Committee on Standards for review and recommendation. The committee's report would be a recommendation to the dean, whose decision would be final. In reviewing the appeals, both the dean and committee would have broad latitude in their procedures and recommendations. They might, for example, request additional information privately from those involved. Or they might choose to invite specified persons, including the student and faculty member, to a meeting to discuss the matter. Whatever their approach, it should take appropriate account of the interests of both the student and faculty member.

In all cases the dean shall communicate the final decision to the student, faculty member, department head, and, if a grade change is involved, to the University Registrar. In appeals where the dean initially makes the decision, the decision should normally be communicated to the student within 10 class days after the appeal deadline. When appeals are referred to the committee, the final decision should normally be communicated to the student by the dean within 20 class days after the appeal deadline.

NOTE: In the case where a faculty member invokes a grade penalty on a student because of academic misconduct, the faculty member will report the incident and penalty to his/her Department Head and to the Office of Student Life. If the student chooses to appeal the sanction, the student will follow the procedures contained in the Academic Honor Code (Section Eight: Appeals), detailed later in this chapter.

Academic Misconduct

Academic misconduct at the University is determined by the faculty member, committee, or other supervisor(s) under whom such misconduct occurs. The misconduct may occur in an individual class, a comprehensive exam, a practicum, an internship, a thesis or dissertation, a research project, a multi-quarter sequence of courses, or any other academically related matter or setting. Sanctions may range from dismissal from the University or an academic degree program to a failing grade or other penalty as determined by the faculty member, plan of study committee, supervising authority, or judiciary. The student has the right to appeal the charge of academic misconduct in accordance with the procedures contained in the Academic Honor Code (Section Eight: Appeals), detailed later in this chapter.

Academic Transcripts

The official permanent academic records for all Louisiana Tech students are maintained in the University Registrar's Office. These records are protected in accordance with the guidelines contained in the Family Educational Rights and Privacy Act (FERPA), detailed in the University Overview of this Catalog. Transcripts of the academic record may be secured by the individual personally or will be released on the student's written authorization.

Transcript production is a service provided by the University Registrar's Office. Official transcripts will not be issued for any student who has an unfulfilled obligation to the University. This is termed a "charge" or a "hold" and must be cleared with the department levying the charge.

Further instructions on how to obtain transcripts can be found online at URL www.latech.edu/registrar/transcripts.shtml

Undergraduate Appeals Procedure

Louisiana Tech University provides each undergraduate student with an appeal process to use for many of the specific academic situations that a student may encounter in their undergraduate academic career. These specific appeals processes include, but are not limited to, Late Drop/Resignation with "W" Grade(s), Academic Suspension Reinstatement, Final Grade Appeals, and Academic Misconduct/Academic Honor Code Appeal (all detailed elsewhere in Chapters 3 or 4).

Students will use the following general academic appeal process for all other academic program related situations regarding their undergraduate status or their progress in undergraduate academic programs that don't fall under the specific procedures named above:

1. All appeals must be presented in writing to the appropriate University personnel. The written appeal must provide factual details of the issue and decision to be reviewed, along with factual supporting documentation.
2. A student must initiate a College-level appeal within two calendar weeks of notification of the action being appealed. Each subsequent appeal must be made within two calendars of the student being advised of the previous level appeal decision.
3. Levels of appeal:
   a. Initiate the College-level appeal in writing to the Department Head/School Director of the college in which the student is enrolled. A letter of support from the student's Academic Advisor should accompany student appeals. The Department Head/School Director will approve/deny the request in writing. If the appeal is denied, the student may submit a written appeal at the next administrative level.
   b. The Department Head/School Directors decision may be appeal in writing to the College Dean. The Dean will review and approve/deny the appeal in writing. The decision of the Academic Dean is final.
   c. A student may appeal a Dean's final decision, in writing, to the Vice President for Academic Affairs, who will review all documentation and decisions rendered to that point, and either support the decisions rendered to that point (deny the appeal), or initiate a review of all actions to that point in order to render a decision in writing to the student.
   d. A decision of the Vice President for Academic Affairs may be appealed, in writing, to the President of Louisiana Tech University, who will follow similar review protocol prior to denying the appeal or initiating a further review.

Outstanding Academic Achievement

The President's Honor List

The ***President's Honor List*** is prepared at the end of each quarter and is for undergraduate students with an outstanding grade point average (GPA) for that given quarter. The requirements are

- a GPA of at least **3.8**, calculated on
- a minimum of **9** semester hours completed (excludes audit and pass/fail hours), with
- no **(I)**ncomplete grade, and
- no grade lower than a **B**, and
- all courses attempted are at the **100-level or above**.

The Dean's Honor List

The ***Dean's Honor Lists*** are also prepared at the end of each quarter for undergraduate students with high GPAs for that quarter. The requirements are

- a GPA of at least **3.5**, calculated on
- a minimum of **9** semester hours completed (excludes audit and pass/fail hours) with
- no **(I)**ncomplete grade, and
- no grade lower than a **C**, and
- all courses attempted are at the **100-level or above**.

Students enrolled in Developmental Education Program courses (099-series) are not eligible for these quarterly academic honors during the quarter(s) they are registered for the 099 course(s). In addition, the minimum 9 semester hours cannot include courses taken for satisfactory/failure or audit grades.

Graduation Requirements

Requirements for All Degree Candidates

1. The student must be enrolled at Louisiana Tech University during the quarter he/she expects to be a degree candidate. The student will report his/her candidacy to his/her dean and to the University Registrar within the first three weeks of the quarter. The student will register to graduate in the University Registrar's Office (Keeny Hall 207). This formally initiates the final degree audit process in preparation for conferral of the degree. Students who miss the deadline must have their Academic Dean's written permission for late addition to the degree candidates list.
2. Arrangements for graduation robes, caps, invitations, etc., should be made through the University Bookstore as soon as registration for graduation is completed.
3. Candidates requiring transfer course work to meet degree requirements (correspondence course, online course, collaborative course, etc.) must have an official transcript with the final grade posted in the Registrar's Office no later than the date that all degree-candidate grades are due.
4. Each qualified degree candidate is expected to be present at the commencement ceremony. A candidate can petition to be absent through a written request to the University President. Information concerning duplicate diplomas, diploma mailing fees, and other diploma services can be obtained from the Commencement Coordinator located in the University Registrar's Office or online at www.latech.edu/registrar/graduation.shtml.
5. It is highly recommended that the candidate register in the Career Center (Keeny Hall 340) during the quarter preceding the one in which he/she expects to graduate.
6. A candidate for graduation who fails to pass the final examination in only one course during the last quarter's work may be permitted to take a "deficiency examination" in this course. The deficiency examination grade will replace only the final examination grade. A deficiency examination will be administered only if said substitution could lead to an overall passing grade. If the student fails the "deficiency examination," the course must be repeated.
7. Candidates who do not meet degree requirements by published deadlines will not be allowed to participate in commencement exercises, nor graduate in the current quarter.

Associate Degree Requirements

The Associate Degree can be earned from Louisiana Tech University when a student has fulfilled the following requirements:

1. The candidate must complete one of the approved associate degree programs consisting of 60 or more specified academic credit hours.
2. He/she must make a "**C**" average on hours earned. A student who is deficient on an hours-earned basis of more than 6 quality points of a "**C**" average at the beginning of the final quarter will not be allowed to register for graduation. A transfer student must also make a "**C**" average on all hours earned at Louisiana Tech.
3. If he/she is a transfer student, he/she must not have fewer than 24 weeks in residence at Louisiana Tech, during which at least 25% of the semester hours required for the curricula are earned with a minimum 2.0 GPA.
4. The last two quarters must be spent in residence. Exception: a student who has fulfilled the minimum residence requirements may be permitted to earn six of the last 18 hours out of residence.
5. One fourth of the hours required for graduation must be completed in residence. Louisiana Tech does not permit a student to apply for more than 6 hours of correspondence study toward the pursuit of a degree.

Earning a Second Associate Degree

If a student wishes to add an associate degree as a second degree in another field of study at the University, at least 15 semester hours in addition to the number needed for the first degree are required. If a student completes requirements for an associate degree as he/she progresses toward a bachelor's degree, then no additional hours are required, providing that specific requirements are satisfied for both degrees.

Baccalaureate Degree Requirements

1. The candidate must complete one of the approved baccalaureate curricula of the five colleges.
2. A "**C**" average on hours earned is required. A student who is deficient on an hours-earned basis of more than 9 quality points of a "**C**" average at the beginning of the final quarter will not be allowed to register for graduation. A transfer student must also make a "**C**" average on all hours earned at Louisiana Tech.
3. If he/she is a transfer student, no fewer than 36 weeks in residence at Louisiana Tech are required, during which at least 25% of the semester hours required for the curricula are earned with a minimum 2.0 GPA.
4. He/she must spend the senior year in residence. Exception: A student who has fulfilled the minimum residence requirements may be permitted to earn 9 of the last 36 semester hours out of residence.
5. Three fourths of the hours required for graduation must have been completed in college residence. Louisiana Tech does not permit a student to apply more than 6 hours of correspondence study toward the pursuit of a degree.

Earning a Double Major

Students who wish to earn two majors (double major) at the same time must:

1. Complete all degree requirements for the primary major, and all the courses required for the secondary major before receiving the baccalaureate degree.
2. Meet all grade point average and grade requirements applicable to both majors.
3. Complete the double major within either a B.A. or a B.S. degree

program. There is no double major with a B.A. and a B.S.

NOTE: Many majors are not eligible for conferral outside of accredited, profession-specific degrees. The student should check with his/her academic advisor and with the University Registrar to determine whether the major combination he/she is interested in is approved for conferral before beginning the additional course of study.

Earning Two Baccalaureate Degrees Simultaneously

Typically, when two majors are not eligible for conferral under the same degree (B.A., B.S., or professional), a student will choose to pursue a double degree. To earn two baccalaureate degrees simultaneously, a student must:

1. Complete all requirements for both degrees.
2. Earn a minimum of 30 semester hours applicable to the second degree and beyond the minimum requirement for the first degree.
3. Meet all grade point average and grade requirements applicable to both degrees.

Earning a Second Baccalaureate Degree

Students holding a baccalaureate degree from Louisiana Tech University or any regionally-accredited institution may earn a second or subsequent baccalaureate degree in another field of study if they:

1. Earn a minimum of 30 semester hours in addition to the number required for the first degree.
2. Complete all general (GER and IER) degree requirements and subject requirements for the second (or subsequent) degree.
3. Meet all grade point average and grade requirements applicable to both degrees.

Masters and Doctoral Degree Requirements

For specific degree requirements, see the Graduate School section of this Catalog (Chapter 15).

Graduation with Honors

Associate Degree Honors

Students receiving their first associate degree are also recognized for outstanding academic achievement. The following conditions determine such recognition:

- ***Honors*** - a cumulative GPA of 3.30 on all hours pursued
- ***Distinction*** - a cumulative GPA of 3.70 on all hours pursued

The student must have earned a minimum of 15 semester credit hours at Louisiana Tech University to be eligible for and receive such recognition.

Baccalaureate Degree Latin Honors

Students who achieve outstanding academic results during their undergraduate career receive special recognition at graduation through a suitable Latin inscription on their diploma, special wording on their official transcript, and verbal recognition by their dean during the commencement ceremony.

The following cumulative GPA standards, established by the University of Louisiana System, are used to determine such eligibility and recognition:

- ***cum laude*** - a cumulative GPA of 3.50 on all hours pursued;
- ***magna cum laude*** - a cumulative GPA of 3.70 on all hours pursued;
- ***summa cum laude*** - a cumulative GPA of 3.90 on all hours pursued.

The student must have earned a minimum of 30 semester credit hours at Louisiana Tech University to be eligible for and receive such recognition.

Honors Scholar Distinction

Students who complete 21 semester hours of Honors Program classes and graduate with at least a 3.3 overall GPA, will receive formal designation as *Honors Scholars* on their official academic transcript. Honors students who take 9 semester hours of 400-level Honors classes and write an Honors thesis will receive formal designation as *Senior Honors Scholars* on their official academic transcript.

Academic Honor Code

SECTION ONE: PREAMBLE

Academic integrity at Louisiana Tech University is based upon and encompasses the Tenets of Tech: integrity, respect, leadership, loyalty, enthusiasm, caring, hope, pride, confidence, excellence, commitment, and knowledge. Through the active pursuit of academic integrity, the University strengthens the value of the education and degrees that students seek to earn. Conversely, misconduct tarnishes the reputation of Louisiana Tech University and discredits the accomplishments of current students as well as graduates. Consequently, the University expects that all members of its academic community will demonstrate honesty and integrity in all academic relationships.

The purpose of the Honor Code is to articulate and support the interests of Louisiana Tech University in maintaining the highest standard of conduct in academic affairs. This policy has been developed to provide students and faculty with guidelines to determine what behaviors violate the Honor Code and procedures for dealing with behaviors alleged to be in violation of the Code.

SECTION TWO: HONOR CODE STATEMENT

Being a student of a higher standard, I pledge to embody the principles of academic integrity.

SECTION THREE: HONOR CODE VIOLATIONS

Acts that will be considered violations of the honor code are grouped in the categories that follow. It will be considered a violation of the Louisiana Tech University Honor Code to commit or to attempt to commit any offense as outlined below.

3.1 **Cheating** - Cheating is defined as the act of giving unauthorized assistance to or receiving unauthorized assistance from another individual for the purpose of completing academic requirements. This includes, but is not limited to, the completion of homework, tests, projects, or research assignments. Some examples of cheating are:

3.1.1. During an examination, having access to and/or referring to information not specifically allowed by the instructor or receiving information from another student or another unauthorized source. Also included would be allowing another student to copy one's paper.

3.1.2. Representing another person's work or any part thereof, be it published or unpublished, as one's own, which is referred to as "plagiarism."

3.1.3. Copying another's entire paper and claiming it as one's own.

3.1.4. Copying a part of a paper or another source and claiming it as one's own.

3.1.5. Copying information from a source word for word without using citations.

3.1.6. Copying information from a source but changing the words around without providing citations.

3.1.7. Obtaining, distributing, or referring to a copy of an examination which the instructor and/or department has not authorized to be made available for such purpose.

3.1.8. Submitting work that has been previously or is being concurrently used in a different class by oneself or by another student. Special permission must be obtained from the instructor or professor

if a student wishes to utilize or develop further any work prepared for another class.

3.1.9. Misrepresentation of data for any purpose will represent a violation of the standards of the honor code.

3.2 **Falsification** - Falsification is defined as altering official University documents, forging signatures of University officials or any other individual, or any other attempt to misrepresent official institutional documents or records. This also includes the alteration of grades or any other records related to the academic performance of students, whether another student's or one's own. This shall also include submitting any false records in order to gain admission to the University. Violations include not only falsification of records but also oral and written misrepresentation of truth in any kind of communication with University officials. This violation will result in automatic referral to the Office of Student Affairs.

3.3 **Stealing/Unauthorized Access** - This violation includes acquiring unauthorized access to property, information, or materials which belong to another person. These materials or property may belong to a faculty member, a staff member, the university, or another student and can be acquired in any form, including electronic information. This violation will result in automatic referral to the Office of Student Affairs.

3.4 **Handling or Using Unauthorized Devices and/or Violating Behavioral Testing Instructions** - This violation includes but is not limited to using or handling cell phones, PDAs, MP3 players, or unauthorized calculators when use of the device has been prohibited by the instructor. This violation could also include unauthorized communicating during an exam or looking at someone else's test paper.

It will also be considered a violation of the Louisiana Tech University Honor Code to assist, attempt to assist, or conspire to assist another student in committing the offenses as outlined above. A second reported offense may result in referral to the Behavioral Standards Committee.

SECTION FOUR: HONOR CODE VIOLATION

INITIAL ACTION

Upon a determination by University faculty or staff that there has been a violation of the Honor Code, he/she may invoke sanctions without referral to the Honor Council. The student will have the option to accept the penalty without a hearing or to request that the matter be referred to the Honor Council for an appeal. If the student accepts the sanction without appeal, it shall be the responsibility of the instructor to report the violation and sanctions imposed to the Honor Council through the Dean of Student Development.

On other occasions, the instructor may feel that there was a possible Honor Code violation and will have the option to refer the matter directly to the Honor Council for appropriate action.

Should a student wish to report a violation of the honor code, he or she should notify the instructor or the Dean of Student Development, as is appropriate.

SECTION FIVE: THE HONOR COUNCIL

The Honor Council shall be comprised of the following:

A. Three faculty members appointed by the Vice President for Academic Affairs; and

B. One staff member appointed by the Vice President for Student Advancement;

C. Five students with three being upper-class undergraduates appointed by the SGA President and 2 graduate students appointed by the Dean of the Graduate School; and

D. One faculty chairperson appointed by the Vice President for Academic Affairs.

Quorum - The presence of a chairperson and six members with at least two student members; and, with a quorum present, the Committee may perform any of its functions and exercise any of its powers.

Recusation - Any member of the Committee who is involved or associated with the case being considered may excuse himself or herself.

All hearings will be closed except to those involved in the hearings.

SECTION SIX: HONOR COUNCIL PROCEDURES

These procedures will apply when a student is referred to the Honor Council for infractions or violations of University Honor Code. The purpose of the hearing is to determine if an Honor Code violation has occurred.

The student will be given written notification at least three (3) days before the date set for the hearing. The notification will include a statement of the alleged academic misconduct; the date, time, and place of the meeting of the hearing board; a statement of the right to review evidence and a list of witnesses presented at the hearing; and a statement of the right to bring witnesses on his/her behalf. The day after the date of notification shall be the first day of the three-day delay period. The determination of the time of the hearing will include consideration of the student's class schedule.

Both the accuser and the accused will be informed that he/she may bring one representative (either personal or legal counsel) who may attend and advise the student but may not present the student's case. The representative or the attorney when applicable, has no standing in the proceedings, but may provide advice to the respective student in a quiet manner that is not disruptive to the proceedings. The student shall give the Council notice in writing of his/her plans to bring a representative.

The student will be notified that he/she can present evidence or witnesses on his/her behalf, that the student will have a reasonable opportunity for questioning witnesses appearing against him/her, and that the student may be present during all phases of the hearing except during the Council deliberation. The student will be notified of his/her right to review all of the evidence that will be presented on behalf of the University.

The Council shall be empowered to hear or not to hear such witnesses and evidence as it may deem relevant and fair, including, but not limited to, any information made a part of the original report.

The Vice President for Student Advancement or his representative will be present at this hearing to present the case to the Honor Council.

Once a date, time, and meeting place of the hearing have been established, the student has been duly notified, and a Council quorum has been convened, the hearing will be held even if the student or his/her personal representative or both of them fail to appear. However, if in the opinion of the Chairperson of the Honor Council, there is just cause for delay of the hearing, the Chairperson may reschedule it for a later date. For purposes of this section, "just cause" means any eventuality that would prevent the student from receiving a fair hearing.

The proceedings will be tape recorded. Only one official recording will be permitted. All original documentation is maintained by the Office of Student Life.

SECTION SEVEN: HONOR COUNCIL SANCTIONS

7.03 **Censures Recommended by the Honor Council**

7.03:01 Academic Sanctions can include any combination of the following:

7.03:01(a) Assignment of an "**F**" grade in the course.

7:03:01(b) Assignment of a failing grade or score on the assignment or examination in question.

7:03:01(c) Assignment of additional work in the class to provide evidence of the student's academic knowledge of the material.

7:03:01(d) Participation in the university SMART HABITS Academy. The purpose of this seminar is to provide an educational venue for students to become knowledgeable about academic honesty, honor code issues, and to build academic skills.

7:03:02 Administrative Probation - A precautionary measure which carries the provision that continued enrollment depends on strict compliance with University academic standards. Administrative probation shall be for a definite period of time.

7:03:03 Referral to Behavioral Standards Committee - The Honor Council may refer a student to the Behavioral Standards

Committee if the committee members deem that the violation is beyond the scope of the Honor Council. Any sanction involving referral to the Behavioral Standards Committee is not appealable. Due process is guaranteed through the Behavioral Standards Committee process.

7:03:04 Suspension Recommendation - The Honor Council may refer the case to the Behavioral Standards Committee with a recommendation for suspension or expulsion.

The Honor Council may determine that the evidence of an alleged violation is not compelling enough to find the student in violation. In such an instance, the student is to follow the normal grade appeal process.

SECTION EIGHT: APPEALS

Procedures for Appeal

A student may issue a written appeal of a decision by the instructor, the Honor Council, or Administrative Review Board if any of the following apply:

1. procedural error
2. new evidence
3. unsupported conclusion
4. disproportionate sanction

Students initiating the appeal process should be aware that an appeal can result in upholding the original sanction, reducing the sanction, or increasing the sanction. Students who face a suspension or expulsion sanction and are appealing should attend classes until notified by the university.

Prerequisite to All Appeals

An appeal shall not be considered until the complaining student has exhausted all prior appeals.

Appeal of a Sanction by an Instructor

Any student may appeal a sanction levied by an instructor for an honor code violation. The student appeal (through the Student Life Office - 326 Keeny Hall) within three (3) business days after notice of the instructor's decision has been mailed or verbally given to the student. Late notices of appeal will be accepted or rejected by the Dean of the College under which the course was taught after hearing the student's reasons for failure to comply with the preceding sentence. In appeals regarding administrative actions of the instructor of record, the Honor Council shall hear and decide the merits of the accusation and the censure imposed as if the matter were being brought before it initially. The instructor of record will be present at this hearing.

Appeal of a Recommendation by the Honor Council

Within three (3) business days after notice of a decision of the Honor Council, the aggrieved student shall have the right to appeal to the Administrative Review Board. To do so, the student shall give written notification to the Vice President for Student Advancement of his/her appeal to the Administrative Review Board. The Vice President for Student Advancement shall, within a reasonable time, set a date, time, and place for review of the decision of the Honor Council and notify the student thereof. Late notices of appeal will be accepted or rejected by the Vice President for Student Advancement after hearing the student's reasons for failure to comply with the preceding sentence. The entire record of proceedings and the evidence presented before the Honor Council shall be automatically transmitted to the Administrative Review Board. The student may, at his/her discretion, submit additional written evidence which is relevant to the issue before the Board. The Vice President for Student Advancement or his/her representative will be present at this hearing. The Administrative Review Board may take any one of the following actions:

1. approve the recommendation submitted by the Honor Council;
2. amend and approve the recommendation; or
3. return the recommendation for further study.

SECTION NINE: ADMINISTRATIVE REVIEW BOARD

The Administrative Review Board shall consist of the following:

1. The Vice President for Student Advancement or his/her designee, as chairperson;
2. The Vice President for Academic Affairs or his/her designee; and
3. The dean of the college in which the student is registered or his/her designee.

Quorum - The presence in person of two members of the Administrative Review Board (or their duly appointed representative) shall constitute a quorum.

All hearings will be closed except to those involved in the hearings.

SECTION TEN: EFFECTUATION OF CENSURES

Censures other than Suspension and Expulsion Recommendations

In cases where the decision or recommendation of the disciplinary body or functionary is other than a recommendation to the Behavioral Standards Committee to suspend or expel the student, the censure shall take effect from the time the student is informed by the appropriate official.

Censures: Recommendation of Suspension or Expulsion

In cases where the recommendation of the Honor Council to the Behavioral Standards Committee is to suspend or expel, the case shall be referred immediately to the Behavioral Standards Committee for appropriate action.

Failure to Comply

Any student receiving sanctions from the Honor Council and failing to fulfill the requirements set forth within the prescribed time period shall be referred to the Behavioral Standards Committee.

Chapter 5 – Student Affairs

Student Affairs Overview

The Division of Student Affairs is organized for the purpose of assisting students in determining self-direction and personal goals and to encourage development of skills for the satisfactory attainment of those goals. For this purpose the services of the division are many and varied with emphasis on the individual student.

Thus, any prospective Louisiana Tech student should become familiar with the following services of the Division of Student Affairs:

- admissions
- bookstore
- co-curricular programs
- counseling services and career center
- enrollment management
- financial aid
- food services
- housing/residential life
- international student office
- judicial affairs
- multicultural affairs
- recreation/intramurals
- student activities and student organizations
- student health center
- testing and disability services
- university police

NOTICE: The regulations contained in this Catalog are based upon present and foreseen conditions, and the University reserves the right to modify any statement in accordance with unforeseen conditions.

Off-Campus Housing Application Requirements

The University of Louisiana System has adopted resolutions that affect the housing policy at Louisiana Tech University and all other colleges and universities under its jurisdiction. In compliance with the University of Louisiana System, Louisiana Tech has the following on-campus residency requirement:

All unmarried full-time undergraduate students, regardless of age or whether or not emancipated, except those living with parents, are required to live in on-campus residence halls or apartments as long as space is available, and purchase a meal plan.

The resolutions further define the on-campus residency requirement to include a framework within which the colleges and universities may grant exemptions to the general regulation according to the unique academic character, academic traditions, objectives, and special qualities of each institution, keeping in mind the total objectives of higher education in Louisiana. The philosophy of higher education in Louisiana includes, in addition to the basic and primary educational pursuits, additional enrichment afforded by student life facilities and programs, all of which form an integral part of the total educational experience of the student.

In order to be consistent in granting exemptions from the on-campus residency requirement, all unmarried full-time undergraduate students, regardless of age or whether or not emancipated, except those living with parents, are required to make application if they wish to be considered for an exemption.

Applications for exemption to the on-campus residence requirement must be made in writing to the Student Life Office no later than 14 days prior to the beginning of the quarter. The student is notified by the Student Life Office of the decision rendered by the committee. Forms are available in the Student Affairs Office, Keeny Hall Room 305 or they can be downloaded from www.latech.edu/students.

Any student who has applied for and been denied an exemption to the on-campus residence requirement shall have the right to appeal such decision to proper officials in accordance with the provisions and administrative procedures for appeal authorized and established pursuant to the authority of Act 59 of 1969 (L.R.S. 17:3101) and the rules of procedure of the State Board supplemental thereto. Such appeals will be made to the Student Life Office and shall apply only to students who have submitted applications before the listed deadline.

Single, full-time undergraduate students who are living with their parents should contact the Student Life Office for information about the commuting process. Completed, notarized forms (available at www.latech.edu/students/) must be submitted to the Student Life Office prior to 14 days before the beginning of the quarter.

If the residence halls are full, exemptions to the requirement of on-campus residence hall living may be made according to the following priority:

1. First, undergraduate students who wish to live with a close relative, defined as grandparents, married brother, or married sister.
2. Second, undergraduate students who wish to live in social fraternity houses.
3. Third, seniors.
4. Fourth, juniors.
5. Fifth, sophomores.
6. Sixth, freshmen.

Within each of the foregoing classifications, the following additional rules of priority shall be applied:

1. First, students who have resided in off-campus housing the longest period of time.
2. Second, date application was received.

In addition, an exemption may be applied for in a hardship case or by an older student.

Definitions of Housing Terminology

The following words and phrases, in the absence of clearer indications, have the following interpretations:

- *"Living with parent"* means any place of abode owned, rented, or leased and occupied by the parent.
- *"Living with close relatives"* means any place of abode owned, rented or leased and occupied by the grandparent, married brother, or married sister.
- *"Living in social fraternity houses"* means living in any house owned, rented, or leased by a University-recognized social fraternity.
- *"Senior"* means an undergraduate student who has earned a minimum of 90 semester hours.
- *"Junior"* means an undergraduate student who has earned a minimum of 60 semester hours.
- *"Sophomore"* means an undergraduate student who has earned a minimum of 30 semester hours.
- *"Freshman"* means an undergraduate student who has not yet earned 30 semester hours.
- *"Student who has resided in off-campus housing for the longest period of time"* means a student who has lived off-campus for the most quarters, other than with a parent.
- *"Date application was received"* means recording the date the applications for exemption are received in the Student Life Office.
- *"Hardship case"* means a person who will suffer significant hardship because of valid financial, medical, or other sound reasons. (Special diets are available in on-campus dining facilities.)
- *"Older student"* means a person where a determination of fact that such individual is, by virtue of age and experience, incompatible with the residence hall age group.

Students found violating the policy as stated in the above paragraphs are required to move into the residence hall system and pay full room rent and associated fees for the quarter in which the violation occurred. A student is referred to the Behavioral Standards Committee if he/she refuses to move into the residence hall and pay the rent.

Applications

Applications for residence hall/apartment reservations are accepted beginning October 15 of each year for the following summer, fall, winter, and spring quarters. Reservation contracts are not confirmed until the following have been submitted to the University's Residential Life Office:

- completed residence hall application, and
- a $150 non-refundable application/reservation fee (check, money order, or credit card only).

All residence hall students are required to pay for room and meals. Fall assignments are mailed the beginning of July, and winter, spring, and summer assignments are e-mailed one week before the quarter begins. For additional information call (318) 257-4917, or log on to www.latech.edu/students/residential-life.

Residence Hall Accommodations

Specific room assignments for new Louisiana Tech students are made according to the date the completed residence hall room contracts for the student and his/her roommate requests, if any, are received. Roommate requests must be mutual and submitted before the deadline. Returning students presently living in the residence halls are re-assigned to their same rooms fall quarter through spring quarter unless a room change is requested. A limited number of halls are open each summer quarter. All buildings close at the end of each quarter, except apartments.

Reservations

At an announced time during each spring quarter, all current residents pay a $100 reservation fee to secure a room for the summer and/or fall quarters. Residents may complete their reservations in person at the Residential Life Office located in the Bulldog Achievement Resource Center (BARC) on the 2nd floor of Wyly Tower. Resident may or may not have the option to reserve their current room. Students may reserve spaces on campus based on a calendar of specific dates that will be sent to the student by letter and be email. Failure to pay the reservation fee within the announced time frame may result in the loss of the resident's room.

Terms under which Residence Hall Rooms are Contracted

The University reserves all rights in connection with room assignments or termination of their occupancy. Occupants of residence hall rooms/apartments are held liable for damage to the University property within the room, building, and all other University property they use or to which they have access. Louisiana Tech is not responsible for loss of property in the residence halls/apartments due to theft, floods, interruptions of utilities, or other causes. The University does not refund rent for loss of or interruptions in utilities. A personal property insurance policy is recommended.

The Residential Life Office reserves the right to cancel the student's reservation if the student fails to check into his/her assigned room by 5p.m. the day before late registration begins.

The current student who does not return to the residence hall/apartment the following quarter must advise the Residential Life Office of his/her plans and check out of the residence hall/apartment by the close of the current quarter. Academically suspended students must check out of the residence halls/apartments by Friday of the first week of the quarter.

The student who leaves the residence halls/apartments under authorization of the University and in compliance with University rules and regulations, and remains in school will forfeit the unexpended portion of room payment (rent) for the quarter.

"Official check-out" and "conclusion of the use of the room" are defined as having moved all personal belongings out of the room, completing check-out paperwork with a resident assistant or hall director, and processing a check-out slip through the Residential Life Office

A student is considered living in the residence hall room/apartment until he/she has officially checked out of the residence hall system, concluded the use of the room, and completed the processing of the check-out

A student continues payment for room rent and meals until all official check-out procedures are completed. The student may continue to use the food service, if so desired. To do so, the student must notify the cashier in the Comptroller's Office of this decision. If the student does not wish to continue using the food service, the unexpended portion of payment for the pay period involved is forfeited.

The student who resigns from the University receives a 75% refund of room rent prior to the 9th class day and no refund of room rent thereafter. No refunds are given to students who are dismissed from the University or the residence halls/apartments for academic or disciplinary reasons.

All penalties and charges incurred during a quarter must be paid at the cashier's window in the Comptroller's Office before the end of the quarter that the charge(s) was incurred, or charges will be held against the student's record and the student cannot register.

International Students and Faculty

The Office of International Student & Scholar Services (ISSS) works in conjunction with the University to meet all requirements stipulated by the United States Citizenship and Immigration Services (USCIS), as a university authorized to host international students and faculty.

The office provides services to international students and visiting researchers by offering orientation programs to assist in the adjustment to a new environment, maintaining current USCIS files, providing personal and educational guidance, assisting students in obtaining social security numbers and special work authorization, and by serving as an informational resource for meeting all immigration requirements.

The Office of ISSS sponsors a number of cross-cultural events and programs intended to enhance the educational experience of all University students and faculty, as well as the American host community. For more information call (318) 257-4321, or log on to www.latech.edu/tech/admissions/iso.

Student Health Center

The Student Health Center, located in South Hall, has registered nurses on duty between 7:30 a.m. and 4:00 p.m., Monday through Friday. Services are offered free or with minimal charge to all students. Services include, but are not limited to:

- physical assessment of ears, eyes, nose, throat and upper respiratory;
- first-aid treatment for minor injuries;
- removal of stitches and staples;
- blood pressure checks; and
- the administering of allergy and immunization shots.

Limited lab work as well as crutches and heating pads are available. Referrals to medical doctors are made through a voucher system when indicated. Student medical histories are maintained by the Center.

Medical expenses for services incurred outside the Health Center are the responsibility of the student. See "Accident and Health Insurance" as described on this page.

In the event of an outbreak of measles, mumps, rubella, or meningitis, students who have not provided documentation of immunity will be excluded from attendance of campus activities, including classes, until the appropriate disease incubation period has expired. For more information call (318) 257-4866, or log on to www.latech.edu/students/health-services.

Student Accident and Health Insurance

Accident insurance is provided through the Student Government Association (SGA) by a self-assessment fee paid at the time of fee payment. Details are provided in a flyer distributed by the SGA.

Counseling Services

Counseling Services is located in 310 Keeny Hall. Licensed professional counselors and the consultation of a licensed psychologist are available to enrolled students who are experiencing personal/emotional, academic, or career concerns.

- *Personal/Emotional Counseling.* Issues might include those related to adjustment to college, relationships, sexuality, anxiety, stress, anger, eating disorders, depression, and suicidal thinking. Student needs that are within the scope of the counselors' training are met for these issues through individual and group counseling.
- *Academic Support.* Students are invited to work with a counselor and/or attend a workshop to determine areas of strength and weakness in their academic strategies. The counselor and student work together to determine goals for addressing such factors as time management, examination preparation, anxiety reduction, concentration and memory improvement, and motivation.
- *Career Decision Making.* Quarterly workshops, a career development class, and individual career counseling are offered to assist students in developing career decision-making skills, in assessing ability, personality, interest and values and in acquiring information about careers. A Career Resource Lab houses current publications as well as a state-of-the-art computerized information retrieval system.
- *Alcohol and Other Drug Education.* Educational, intervention, and treatment programs assist students in understanding use/abuse of alcohol and other drugs, as well as their impact on student development.

Counselors also train the Peer Leadership Council, an elite group of students who provide educational programming and facilitate discussions on issues vital to student development.

Counseling Services is accredited by the International Association of Counseling Services, Inc. and services are delivered free and under a strict code of confidentiality. For more information about any programs offered through Counseling Services, call (318) 257-2488, or log on to www.latech.edu/students/counseling/.

Career Center

The Career Center provides numerous resources and services to students and alumni of Louisiana Tech. Students are encouraged to participate in on-campus interviews and attend seminars that assist in the development of job search skills. Seminars are offered quarterly on the following topics:

- orientation on Career Center services,
- business dining,
- writing an effective resume,
- the successful interview,
- professional image,
- evaluating and negotiating job offers,
- federal job search, and
- job search in difficult economic times.

Additional resources include job listings, Optimal Resume, and an extensive career library/lab, which contains informational videos, employer literature, reference materials, professional journals, career education and planning information, and information relating to federal employment opportunities.

Each year the Center sponsors Fall Career Days, Spring Career Day and Teacher Recruitment Day. Individual appointments are available to students and alumni with concerns about any phase of career planning and development.

The Career Center is located in Keeny Hall 337. For additional information, call (318) 257-4336. Learn more about the Career Center at www.latech.edu/career_center/ – a site for students, alumni, and employers.

Co-Curricular Programs

The Office of Co-Curricular Programs, located in 206 Wyly Tower, works jointly with Academic Affairs and Student Affairs to plan and implement programs concurrent with the academic experience. Included are freshman year experiences and service learning. For more information, call (318) 257-4730.

Vehicle Registration

Louisiana Tech requires all faculty, staff, students, and employees who are in any way connected with the University to register their vehicle regardless of ownership and to secure and properly display a parking permit. All vehicles must be registered by the third day of classes for any quarter. Also, vehicles that are purchased or acquired during the quarter must be registered before parking on campus. See vehicle regulations for family or significant other visitor parking rules. Students may register more than one vehicle.

Vehicles may be registered and decals obtained in the Campus Traffic Office located in South Hall.

Each registrant must present a valid driver's license or other picture ID and vehicle registration certificate or bill of sale. All faculty, staff, and students are bound by parking and traffic regulations regardless of whether they register a vehicle. The brochure *Louisiana Tech Vehicle Regulations* may be obtained in the Traffic Office.

Student Conduct

Louisiana Tech University students are expected to conduct themselves in a manner that will not bring discredit but honor to themselves and the institution. Minimal standards of conduct are set forth in the Code of Student Rights, Responsibilities, and Behavior brochure. Each student is required to become acquainted with the contents of this brochure, which can be obtained in the Office of Student Life or on the web at www.latech.edu/students/judicial_affairs

University Police Department

The Louisiana Tech Police Department enhances the University's mission by contributing the following:

- Campus safety. It enforces city, state and federal statutes through vehicular patrol, foot patrol, criminal investigations, narcotic investigations, and police cart patrol. The department enhances the welfare of students by providing assistance as needed (such as escorts, traffic control, officers to increase safety at athletic and special events, and assistance in emergency situations).
- Educational Seminars. It conducts public education seminars in drug education, theft prevention, and D.W.I. awareness
- Behavioral standards. It enforces behavioral standards for students as provided for in the *Code of Student Rights, Responsibilities, and Behavior* brochure through referral to the appropriate university official(s).
- Always accessible. The department has a 24hour information and communications center.

Under Louisiana law, R.S. 17:1805, Louisiana Tech police officers have law enforcement authority including the power of arrest and are commissioned by the Department of Public Safety. All Louisiana Tech police officers are graduates of a P.O.S.T. certified basic police academy. Additionally, officers attend advanced training and update training as needed.

The Louisiana Tech Police Department is located in South Hall on the corner of Tech Drive and Hergot Avenue. Any on-campus emergency, request for on-campus police assistance, or the reporting of on-campus criminal activity should be made to the Louisiana Tech Police Department at 2574018.

Patrol officers are radio-dispatched upon call to assist the public 24 hours a day, 365 days a year. Requests for police assistance may also be initiated with one button dialing on any of 22 emergency phones located on the campus.

Criminal activity is investigated by the Patrol and Investigative Divisions of the department, and offenders are subject to criminal prosecution and University action. Criminal activity may also be reported under the Louisiana Tech Crime Stoppers program at 318-257-4018. Louisiana Tech Crime Stoppers is a regular feature in the student

newspaper. Additional procedures for responding to campus emergencies are outlined in the *University Safety Manual*.

The Louisiana Tech Police Department is a department in the Division of Student Affairs directed by the Chief of University Police who reports to the Dean of Student Life. Additional information on the University Police Department may be found in the Student Handbook or at www.latech.edu/students/university-police.

Student Activities and Organizations

Louisiana Tech University provides a variety of organizations to meet the needs of its student population. With more than 150 different clubs and organizations to join, one can be assured of finding something of interest. Service, governing, professional, and religious/special interest groups exist both on- and off-campus to provide students with opportunities for growth and development outside the classroom.

The Student Government Association (SGA) offers students the possibility of getting involved in politics and government. From a professional perspective, Louisiana Tech offers a number of organizations in the areas of engineering, business, science, education, and liberal arts.

Tech's diversity can be seen through organizations on campus. Special interest clubs meet the needs of our students in a variety of ways. Through involvement in the Union Board, the campus entertainment organization, or KLPI, the campus radio station, students can gain valuable experiences that will train them for the future. Religious organizations are another vital part of the university life for so many of our students.

Involvement in extracurricular organizations and clubs is essential to the overall education of Louisiana Tech students. One can benefit by getting involved and taking part in the various areas of student organizations on campus.

For more information, contact the Office of Student Activities. A complete listing of all organizations and activities can be obtained in order to assist students in the process of getting involved in all that Louisiana Tech has to offer can be obtained by calling (318) 257-3479.

Testing and Disability Services

The Department of Testing and Disability Services (Wyly Tower Room 318) coordinates campus-wide efforts to provide information and services to Louisiana Tech students and others. Inquiries concerning services for students with disabilities should be directed to the coordinator of Disability Services. Services are available to students who provide appropriate documentation to the Office of Disability Services. Any student with a documented disability (e.g., physical, learning, psychiatric, vision, hearing, etc.) and seeking classroom accommodations should contact the instructor(s) and Disability Services at the beginning of each quarter. (318) 257-4221. www.latech.edu/ods. Inquiries concerning testing should be directed to the Testing Coordinator. The Testing Center offers; ACT Compass, CLEP, Proctored, Major Field Tests, Miller Analogies, and the Pre-Admission RN for the NLN. The Testing Center also serves as a test manager for some online exams. For more information regarding the ACT, LSAT and PRAXIS, please contact Counseling and Career Services at (318) 257-2488. The Testing Center does not administer assessments to identify learning disabilities.

It is the policy of the University that issues concerning accommodations of students and applicants for student status in regard to participation in academic and other programs, activities and services of the University should be expeditiously resolved between the person requesting the accommodation and the University office representing the department, program, or service. The University's Office of Testing and Disability Services (TDS) serves as the main point of contact on issues related to ADA compliance for all persons involved in providing class instruction at the University. The TDS will work with students and departments to provide effective and satisfactory accommodations.

Unresolved requests for accommodations or complaints regarding alleged violations of requirements should be presented via the grievance form to the Office of Testing and Disability Services or the ADA Coordinator within 30 days after the individual becomes aware of the unresolved issue. The form is found at URL http://www.latech.edu/students/ods/pdfs/complaint_form.pdf. The written request should provide the name and address of the individual filing the complaint and a brief description of the alleged violation and requested resolution. Students may also raise accessibility concerns verbally.

Referrals will be made as follows:

Academic/curricula – Vice President for Academic Affairs (Dr. Terry McConathy, tmm@latech.edu)

Facility access – Assistant Vice President for Administration and Facilities (Mr. Sam Wallace, Wallace@latech.edu)

Housing/Student sponsored events – Vice President for Student Affairs (Dr. James King, king@latech.edu)

Other Matters – 504 Coordinator/ADA Committee (Mrs. Annie Jantz, ajantz@latech.edu)

Chapter 6 – Student Financial Aid

Financial Aid Overview

Louisiana Tech University provides equal educational opportunities for all students, and this policy of equal opportunity is fully implemented in all programs of financial aid available to assist students in obtaining an education at Louisiana Tech.

An extensive financial aid program encompassing scholarships, grants, employment, and loans is available to assist students. Need, skills, and academic performance are carefully weighed to develop a "financial aid package" for qualifying students. Application for the various Federal Aid Programs and the Louisiana Tuition Opportunity Program for Students (TOPS) requires completion of the Free Application for Federal Student Aid (FAFSA). This application allows the applicant to be considered for a Pell Grant, Federal Supplemental Educational Opportunity Grant, Federal Work-Study positions, Perkins and Stafford loans. This same application allows the dependent student's parent to be processed for a Parent's Loan for Undergraduate Students (PLUS), if requested. The State of Louisiana will use the FAFSA application to trigger a determination of eligibility for TOPS and the Louisiana GO Grant based on FAFSA data.

Federal Pell Grant Program

Authorized under the 1972 Higher Education Act, this program provides for grants to students seeking a first baccalaureate degree. Grants range from $ 577 to $ 5775 per year for full-time attendance.

Federal Supplemental Educational Opportunity Grant (FSEOG) Program

This grant is a federal aid program that provides assistance, to the extent that funds are available, for students with exceptional financial need. Grants are available to undergraduate students, and priority consideration is given to Pell Grant recipients.

Federal Work-Study Program

Employment is available in a wide variety of forms to the student who is willing to work. Areas of work include but are not limited to clerical, maintenance, food service, laboratories, library, and dormitories. Pay rates begin at federal minimum but may be raised commensurate with skill and experience. Work is limited to avoid interference with academic pursuits. The University participates in the Federal College Work Study Program designed to assist students with financial need in addition to employment available through individual departments on campus. Graduate students are eligible for employment under this program.

Federal Perkins Loan Program

A Perkins Loan is a low-interest loan designated to help undergraduate and graduate students pay educational costs. The amount you can borrow depends on your financial need, the amount of other aid you receive, and the availability of funds at your college. You should apply for federal student aid early to make sure you are considered for a Perkins Loan. Due to limited funds, not everyone who qualifies for a Perkins Loan will receive one.

An undergraduate student may borrow up to a maximum of $27,500 during his/her undergraduate program of study.

A graduate student may borrow up to a maximum of $60,000, which includes amounts borrowed as an undergraduate.

Federal Direct Subsidized and Unsubsidized Stafford Loans

Subsidized Stafford loans are available for students meeting certain qualifications. Loans are awarded up to $3,500 for first-year students, $4,500 for second year students, and $5,500 per year for undergraduate students who have completed two years. Students in a two-year program are restricted to borrowing $3500 for the first year of the two-year program and $4,500 for the second year of the program, regardless of credits earned prior to entry into the two-year program. Aggregate loan limits are $23,000 for dependent, undergraduate loan borrowers.

Unsubsidized Stafford loans are available to dependent and independent students in the amount of $2,000 in addition to the subsidized loans. There is an additional annual amount for independent students of $4,000 in the Freshman and Sophomore years and $5,000 each year after reaching the Junior level. The aggregate limit for both types of loans is $57,500. Graduate students are eligible for these loans in amounts up to $20,500 per year unsubsidized.

Federal Direct PLUS Loan Program

Parent Loans for Undergraduate Students are meant to provide additional funds for undergraduate dependent students for educational expenses. Like Stafford Loans, they are made by the Federal Department of Education

Parents may borrow up to the cost of education minus aid, per dependent student, per year.

The student is advised to check the Louisiana Tech University web site www.latech.edu/finaid for further information on each of these programs. Students and parents may make inquiries via e-mail to techaid@latech.edu or call 318-257-2641. You may also visit the Office of Financial Aid in person in Room 240, Keeny Hall or write P. O. Box 7925, Ruston, Louisiana 71272.

Federal Direct Graduate PLUS Loan Program

Authorized by the HERA, graduate or professional students are now eligible to borrow under the PLUS Loan Program up to their cost of attendance minus other estimated financial assistance. Students must have applied for their annual loan maximum in Stafford Loans before applying for a Graduate PLUS Loan.

Satisfactory Academic Progress for Louisiana Tech Financial Aid Eligibility

Satisfactory Academic Progress policy is the term applied to the requirement imposed by the federal government regarding the grades and course completion standards to be eligible for federal financial aid. The rules are in a policy which is available on the web site at www.latech.edu/finaid. The basic requirements are listed in this Catalog, but the policy is the final rule because federal rules may change after publication of the Catalog. Basically, the requirements are as follows:

- Continuing and transfer undergraduate students must maintain a minimum 2.00 cumulative GPA.
- Graduate students must maintain a minimum 3.00 cumulative graduate course GPA.
- All students must successfully complete a minimum of 67% of all courses in which they have enrolled regardless of which post-secondary institutions they have attended. Students may not exceed the maximum hours allowed for the degree program as explained herein.

Maximum Hours Attempted and Financial Aid Eligibility

Maximum hours attempted are considered when determining financial aid eligibility. These hours are considered even if financial aid was not received while attempting them. Regardless of where the hours were attempted, Louisiana Tech standards apply. The general limit is 150% of the hours required for the program of study in which currently enrolled. Students lose eligibility for future quarters and future award years after the quarter in which it is determined that they cannot earn their degree prior to exceeding the maximum hours allowed or they exceed the maximum hours during the award year, whichever occurs

first.

Transfer Students and Satisfactory Academic Progress

Transfer students must meet all standards defined at Louisiana Tech before being eligible for aid. Transfer transcripts will be reviewed to determine total hours attempted at all prior institutions and compared to the maximum allowed at Louisiana Tech for their intended major and to insure that cumulative GPA and percent completion requirements have been met.

Disabilities and Satisfactory Academic Progress

Students who arrive at Louisiana Tech aware of learning or other disabilities should immediately contact the Office of Disability Services so that appropriate accommodations can be made. A student with a documented disability and functional limitations is still held to the same academic expectations as other students. If the student is registered with the Office of Disability Services and receiving appropriate accommodations, the student should be able to maintain satisfactory academic progress for financial aid eligibility purposes.

Academic Suspension and Financial Aid Eligibility

Students are ineligible for financial aid while suspended. An explanation of cumulative grade point averages and their effect on enrollment is found in this Catalog. Contact the Registrar's Office for further information.

Additional Degrees and Financial Aid Eligibility

Students seeking additional degrees are limited as follows:

- Associate 60 credit hours beyond prior degree
- Bachelor's 60 credit hours beyond prior degree
- Master's 45 credit hours beyond prior degree

Students seeking a third associate, bachelor's or master's degree are not eligible for federal financial aid. Doctoral degrees are considered terminal degrees thus no federal aid is available for a second doctoral program.

Students seeking double majors must complete their degree program for the primary major within the limits set for that major. Additional hours will not be allowed for double majors and minors.

Federal regulations frequently mandate amendments to established policies; consequently, federal financial aid participants (and potential participants) would be well advised to maintain close liaison with the financial aid office regarding these requirements.

All applicants for federal financial assistance must complete their file in the financial aid office at least one month prior to the beginning of the quarter for which they seek to receive aid. There are earlier priority deadlines and later applications may receive less favorable funding than those meeting deadlines.

Applicants are advised that there are federal and University penalties; sanctions, fines and imprisonment, for fraudulent applications.

Return of Title IV Funds Policy

The Louisiana Tech University Financial Aid Office is required to administer a return of federal student aid funds that complies with the Higher Education Reauthorization Act of 1998. Federal financial aid includes the Federal Pell grant, Federal Supplemental Educational Opportunity Grant, Perkins loan, Stafford loans, and PLUS loans. The policy that follows complies with the federal requirements.

Title IV funds are awarded to a student under the assumption that the student will attend school for the entire period for which the assistance is awarded. When a student withdraws, the student may no longer be eligible for the full amount of Title IV funds that the student was originally scheduled to receive.

The Financial Aid Office recalculates federal aid eligibility for students who fail to attend, drop out, resign (officially or unofficially), or are dismissed prior to completing more than 60% of the period of enrollment. Recalculation is based on the percent of aid earned using the following formula: *Number of days completed divided by the total days in the period of enrollment equals percent earned. Days in the period of enrollment are counted from the first day of class to the last day of class.* ***The date used in the calculation is defined as the date of last attendance.*** The University must return any unearned aid that was applied to institutional charges. The student then owes the University the amounts returned to the federal aid programs. The student may also be required to return / repay some portion of the federal aid received as a refund by the student. For example, if a student was enrolled for 30% of the period of enrollment, then the student is entitled to only 30% of the aid received; thus, 70% of the aid must be returned to the federal government.

Students who drop after more than 60% of the period of enrollment has passed do not owe immediate pay backs at all. Please be aware that students must have attended at least one class meeting after the 60% point in the period of enrollment.

If this date occurs after the completion of more than 60% of the period of enrollment, the student is considered to have earned 100% of the Title IV aid received.

While this Return of Title IV Funds policy applies solely to students who receive federal financial aid, it must be understood that the Louisiana Tech University refund policy is also applied to all students whether or not they receive federal financial assistance. The student may owe a refund to the University on the basis of University refund rules. Details of the University refund policy are located in the *Racing Form* and quarterly *Expense Sheet*.

Tuition Opportunity Program for Students (TOPS)

The TOPS program is sponsored by the State of Louisiana and administered by the Louisiana Office of Student Financial Assistance (LOSFA). The program provides qualified students with educational funding at colleges and universities in Louisiana. There are three levels of award: Opportunity, Performance and Honors. Performance and Honors awards include an additional stipend. Determination of eligibility is based on Louisiana residency, completion of the TOPS core curriculum, cumulative high school GPA on those courses and the ACT composite score. Information is available from high school counselors and the LOSFA web site www.osfa.state.la.us or call 1-800-259-5626. Application for TOPS is made by submitting the Free Application for Federal Student Aid (FAFSA) so that it is received by the federal processor by July 1st. The FAFSA may be submitted on the web through the Louisiana Tech web site at www.latech.edu/finaid or directly to www.fafsa.ed.gov. Paper FAFSA forms may be obtained through the Office of Financial at 318-257-2641 or e-mail techaid@latech.edu.

The TOPS has requirements for retention. The required cumulative GPA varies by level of award. All require the completion of 24 semester credit hours during the academic year. Details on retention are provided at the time of award to the student by LOSFA. Further information can be obtained at the financial aid web site www.latech.edu/finaid or by visiting the financial aid office in Room 240, Keeny Hall. Students receiving the TOPS should review retention requirements annually with their adviser to insure that they remain in compliance.

Louisiana GO Grant Program

The Louisiana GO Grant was introduced in the Fall of 2007 and the purpose of this program is to provide a need-based component to the state's financial aid plan to support nontraditional and low to moderate-income undergraduate students who need additional aid to afford the cost of attending college in Louisiana. Award amounts to eligible students are based on the institution's allocation and their packaging policy. Awards may vary with each academic year.

To be eligible for a Louisiana Go Grant, a student must be a Louisiana resident, file a Free Application for Federal Student Aid (FAFSA), receive a Federal Pell Grant, have remaining financial need after deducting Estimated Family Contribution (EFC) and all federal/state/institutional grant or scholarship aid ("gift aid") from student's Cost of Attendance (COA), and be a student enrolled in an eligible Louisiana institution on at least a half-time basis (minimum 4 hours at a quarter school).

Details may be obtained at the LOSFA web site www.osfa.state.la.us or call 1-800-259-5626.

Monthly Payment Options for Students and Families

Tuition Management Systems offers families several Monthly Payment Options to help make education expenses more affordable. The Interest-Free Monthly Payment Option enables families to spread all or part of the annual expenses over equal, monthly payments. There are no interest charges, and only a small annual fee. This plan includes life insurance protection covering the unpaid balance at no additional cost. Additionally, low-interest monthly payment options, including an unsecured loan, a home equity credit line, and the federally backed loans, are also available. Contact Tuition Management Systems at 1-800-722-4867 for more information on these programs. www.latech.afford.com.

Veterans' Orphans Scholarships

Veterans' Orphans Scholarships are awarded to sons and daughters of deceased war veterans. Students should apply to the Department of Veterans' Affairs in their district.

Vocational Rehabilitation Grants

Vocational rehabilitation is a public service program for physically and mentally handicapped individuals. To be eligible, a person must have a permanent disability which constitutes a job handicap. Students with disabilities are advised to contact the Department of Vocational Rehabilitation in their district for consideration of their cases.

Academic Scholarships

Louisiana Tech University has a General Scholarship Program; and, in addition, each of the five colleges (Applied and Natural Sciences, Business, Education, Engineering and Science, and Liberal Arts) has its own scholarship program administered through the Office of Undergraduate Admissions,. Scholarships are divided into the following categories:

- **Academic Scholarships** are awarded on the basis of demonstrated ability usually without regard to need.
- **Grant-in-aid and Service Awards**. Frequently these are awarded on the basis of special skills and require the student to render a service to the University. Included in this category are scholarships in athletics, music, band, and academic department awards.
- **The Air Force Reserve Officer's Training Corps** program offers a number of competitive scholarships to both men and women participants. This award may include payment of all tuition and fees, a per quarter allowance for textbooks, and a monthly tax-free cash allowance.

Applying For Scholarships

Academic Scholarships are awarded on the basis of demonstrated ability -- usually without regard to need. For general admissions scholarships, ***incoming freshmen*** should apply for admission by the priority deadline of January 5 (of the senior year). No separate scholarship application is needed, but ACT or SAT scores and high school transcript with GPA and rank (if applicable) should be submitted. For scholarship purposes, scores through the December test date will be accepted.

Transfer students should apply for admissions with official college transcripts and ACT or SAT scores by May 15, for fall quarter awards. Decisions are made in June.

Bulldog Out-of-State Scholarship

The University of Louisiana System Board of Supervisors has authorized exemption of out-of-state tuition for certain non-residents of high academic ability. For more information about such waivers, contact the Office of Admissions at 1-800-LA-TECH-1

Chapter 7 – Special Programs and Facilities

Academy of Marketing Science

The College of Business is the home office for the Academy of Marketing Science. The Academy of Marketing Science is an international, scholarly, professional organization dedicated to promoting excellence in the creation of and dissemination of marketing knowledge. The Academy has numerous programs that sponsor future scholars and encourage thoughtful leadership in marketing research. It is the publisher of the *Journal of the Academy of Marketing Science* which is recognized as one of the top 10 most cited academic journals in all of business.

Applied Research for Organizational Solutions (AROS)

Applied Research for Organizational Solutions (AROS) is a consulting group within the Department of Psychology and Behavioral Sciences. The group is managed by faculty and leverages the energy, enthusiasm, and creativity of the graduate students of the Industrial-Organizational Psychology doctoral program. AROS' purpose is to assist organizations in managing and enhancing their human capital. In partnership with client organizations, AROS develops innovative, yet practical solutions to develop, utilize, and broaden the experiences and contributions of people at work. AROS has executed projects for global, regional, and local organizations across multiple industries.

Athletics Opportunities

Louisiana Tech University is a member of Conference USA. Louisiana Tech has been a member of the NCAA since 1951. Men's teams include football, basketball, indoor and outdoor track, baseball, cross-country, and golf. Women's teams are basketball, indoor and outdoor track, cross-country, tennis, softball, volleyball, bowling, and soccer. This well-balanced sports program provides year-round opportunities for faculty, staff, and students to enjoy athletics on the highest level of collegiate competition.

Barksdale Air Force Base Program

Louisiana Tech has offered on-base degree programs at Barksdale Air Force Base since September 1965. Working in conjunction with the Department of the Air Force, Louisiana Tech provides postsecondary education programs designed to meet the needs of Air Force personnel. Civilians are permitted to participate on a space available basis. The Tech-Barksdale administrative offices are located in the Base Education Center and all courses are taught on-base or online. The following degrees are offered at Tech-Barksdale:

- Associate of General Studies (not available on main campus)
- Bachelor of General Studies
- Bachelor of Arts in Psychology
- Bachelor of Science in Electrical Engineering Technology
- Graduate Certificate in Information Assurance
- Master of Arts in Counseling and Guidance
- Master of Arts in Industrial/Organizational Psychology
- Master of Business Administration

Bulldog Achievement Resource Center (BARC)

The Bulldog Achievement Resource Center (BARC), located on the main floor of Wyly Tower , provides learning assistance in Math, Chemistry, Biology, English, and Supplemental Instruction (SI) in various other courses that have been historically difficult for students. The BARC, which formally opened in 2007, plans to expand learning assistance to other subjects over time. Also housed in the BARC is a Writing Center providing writing assistance to students. Additionally, the BARC functions as a clearinghouse of information for students, provides supplemental advising, and makes referrals for students to other campus-based student services. For additional information, the BARC may be reached at (318) 257-4730.

Center for Applied Physics Studies (CAPS)

The Center for Applied Physics Studies (CAPS) was established in 1997 and has been identified by the University of Louisiana System as a Center of Excellence at Louisiana Tech University. The mission of CAPS is to provide a world-class, integrated engineering and physics educational and research environment, creating opportunities for interdisciplinary studies, sharing of resources, and transfer of technology from basic science to engineering applications. The Center brings together researchers from different academic disciplines and serves the educational needs of the Physics, Chemistry and Electrical Engineering Programs at Louisiana Tech University. The CAPS four primary research areas are:

1. Nuclear and High Energy Particle Physics
2. Photonics, Metamaterials and Nanotechnology
3. Computational Physics, Chemistry and Biology
4. Gravitational Physics and Observational Astronomy

The Center is participating in large scale national and international projects hosted by the Fermi National Accelerator Laboratory (FermiLab), the Thomas Jefferson National Accelerator Facility (TJNAF), and the European Center for Particle Physics (CERN). CAPS have been instrumental in recent major scientific advances including the discovery of the Higgs particle which endows mass to all matter in the Universe, and the development of an entirely new scientific discipline referred to as metamaterial science. The Center activities are externally funded with continuous support provided by Federal and State agencies such as the National Science Foundation (NSF), Department of Energy (DoE), EPSCOR, LaSpace, LaBOR, and private companies.

The CAPS is located in the Engineering Annex Building and has 20,000 sq. ft. of office and laboratory space. The Center hosts the Cerberus community supercomputer and manages the Louisiana Tech Astronomical Observatory. For more information about the CAPS, visit us at www.caps.latech.edu.

Center for Biomedical Engineering and Rehabilitation Science (CBERS)

The Center for Biomedical Engineering and Rehabilitation Science (CBERS) was established in 1985 and since then has been identified as a Center of Excellence at Louisiana Tech University by the Louisiana State Legislature, and more recently by the University of Louisiana System in a review of all its colleges and universities. The Center exists to develop and promote fundamental and translational biomedical research, develop intellectual property, strong ties with biotechnology and medical industry, and strengthen the educational experience and potential of our engineering and science students in biosciences. Through its mission and vision, CBERS is bound to make a significant contribution to the economic development of the State of Louisiana.

The Center is actively engaged in all major fields of biomedical research across all disciplines of engineering and science. CBERS faculty are internationally acclaimed for the interdisciplinary biomedical research they conduct in the broad fields of Neural Engineering and Neuroscience, BioMEMS and Nanobiotechnology. Research laboratories to further support and enhance these efforts have been built in the thrust areas of biosignal and bioimage acquisition and processing, computer modeling and neural networks, biosensors, drug delivery, cell culture and tissue engineering, cancer detection, stem cells and gene technology. The Center promotes faculty's entrepreneurial activities and has established and continues to pursue research partnerships with academic institutions, medical centers and industry regionally, nationally and internationally. CBERS research sponsors include the

Whitaker Foundation, State of Louisiana, NSF, NIH, AFOSR, VA, and US Department of Education.

Louisiana Tech University's Biomedical Engineering Program, the founding pillar of CBERS, is unique in the country being the only engineering school-based program that directly provides clinical rehabilitation services to individuals with disabilities. The center for Rehabilitation Engineering, Science and Technology (CREST), an integral part of CBERS, provides rehabilitation technology services and assessments to the State of Louisiana's Rehabilitation Services agency and other clients. Certified specialists on staff include rehabilitation engineers, a counselor, occupational therapists and assistants, a speech/language pathologist, an adaptive driving evaluator, and a nurse. Additional resources of this center include craft workshops, graphics and video studios, various vehicles used in the driver-training programs, and animal research facilities.

CBERS is housed in the 50,000 sq. ft. Biomedical Engineering Building (BMEB). The building encompasses staff and administrative offices, lecture halls and teaching laboratories, core and individual faculty research laboratories with a wide range of state-of-the-art and clinical-grade equipment. A 5,500 sq. ft. electronically controlled access space at BMEB is dedicated to first class animal research facilities with two surgical suites, animal housing, autoclave and storage rooms, as well as by tissue and bacterial culture laboratories with CO2 incubators, biological safety II cabinets and filtered air transfer hoods.

Last but not least, CBERS provides unique opportunities for faculty and students throughout the university to participate in a multitude of related educational and research outreach activities and programs the Center organizes. For more information on the Center's activities, please visit us at www.latech.edu/coes/cbers.

Center for Children and Families (CCF)

The Center for Children and Families (CCF) is an interdisciplinary initiative of the School of Human Ecology, established by the Louisiana Board of Regents in 1992. The mission of the Center for Children and Families is to improve the well-being of children, youth, and families in North Louisiana through educational programming, collaborative research, and service activities. A major component of the educational programming of CCF is the Bruce Everist Lecture Series, endowed in 1985 by the Ruston Auxiliary in honor of the late Dr. Bruce Everist, a pediatrician who served North Louisiana for almost half a century. Another component of the CCF is the NAEYC accredited, 5-star, Class A Early Childhood Education Center, a learning laboratory for 3- and 4-year old children. Family and Child Studies students and College of Education students observe, teach, and conduct research at the Center.

Center for Economic Education

The Center for Economic Education in the College of Business is affiliated with the Louisiana Council and the National Council on Economic Education. The Center's primary purpose is to promote an increased level of economic understanding in the elementary and secondary schools of its service area.

Center for Entrepreneurship and Information Technology (CEnIT)

CEnIT creates an innovative entrepreneurial culture by enhancing the education of students in information technology and entrepreneurship; promoting the development and commercialization of information technologies generated by university faculty and students; and providing leadership in entrepreneurship and information technology outreach activities that will support economic development in the state. CEnIT is a collaboration between the College of Engineering and Science and the College of Business but involves participation from every college at the institution.

Center for Executive and Professional Development (CEPD)

The Center for Executive and Professional Development in the Louisiana Tech College of Business strives to impact the lives of working professionals by providing them access to excellence in non-credit business education. Our mission is to develop and deliver forward-thinking executive and professional development education. Offerings focus on leadership, team building, communication, and the tools needed for company success and growth. The CEPD brings the same quality and real world application to the non-credit courses as provided in the College's Executive MBA and other degree programs.

Center for Information Assurance

The Center for Information Assurance located in the College of Business is a cutting-edge research center that conducts and promotes research in information assurance. The objective of the center is to conduct research that will focus on furthering in-depth knowledge of how information security and policy impact people, technology, and organizations.

Center for Real Estate Studies

Through funding from the Louisiana Real Estate Commission, the Center for Real Estate Studies coordinates real estate research, funds real estate scholarships, and promotes interaction with real estate professionals. The Center is housed in the College of Business.

Center for Rural Development

The Center for Rural Development provides a linkage between rural residents in Louisiana and experts at Louisiana Tech University in areas that are important to rural development. These include education, nutrition, technology, small business development, community design and planning, agriculture and forestry, folk life and the arts. The Center helps rural community leaders access the data, research, and technical assistance that is available at the University.

The Center's staff also works with Louisiana Tech faculty who wish to do research that pertains to rural development by helping to identify possible community partners for their work.

In addition, the Center seeks to work on rural development projects and research in collaboration with programs at other agencies, nonprofits and universities – both in the State of Louisiana and throughout the country.

The Center is also a source of information about funding opportunities in areas relating to rural development and can assist community leaders and Louisiana Tech faculty and staff in identifying potential sources of funding for specific projects.

Center for Secure Cyberspace (CSC)

The goal of the Center for Secure Cyberspace (CSC: csc.latech.edu) is to establish a national center of excellence dedicated to education and research in integrated smart cyber-centric sensor surveillance systems. The CSC aims to accomplish this goal by achieving three objectives:

- Develop a set of core research foundations in evolvable sensor hardware/software and develop corresponding transformational information technologies for the early prediction, detection, and control of anomalous behavior in cyberspace.
- Develop a world-class multi-institutional, multi-disciplinary center of excellence in Louisiana to support this research. This includes developing and supporting research focus in global scale identity management, situational understanding and attack attribution, enterprise-level metrics, privacy-aware security, combatting insider threats and provenance.
- Build strategic collaborative relationships between national and international academic and industrial partners, and consortia.

The CSC is supported by multiple academic programs, including but not limited to, computer science, cyber engineering and electrical

engineering. Additional support is provided by the robust commercialization infrastructure at Louisiana Tech University, the Center for Entrepreneurship and Information Technology (CEnIT), the Enterprise Center, and the Technology Business Development Center (TBDC) that work with the CSC to commercialize technologies and establish services that support secure cyber operations in the military and the private sector.

CSC also contributes to the education and training programs at Louisiana Tech University through advanced courses and research projects, specialization courses, certification programs, laboratory courses, K-12 outreach efforts through discovery camps to support and sustain the cyberspace workforce development.

For more information about the CSC, visit us at www.csc.latech.edu.

Continuing Education

Today's rate of increase in knowledge has made constant renewal of education a necessity. It is the responsibility of the University to play its part in meeting this need. Louisiana Tech University is committed to learning as a lifelong process. As a means of supporting this commitment, the Division of Continuing Education offers courses that provide learning experiences for both personal enrichment and continuing professional training. Annually, hundreds of people attend events such as non-credit seminars, workshops, and conferences offered through Continuing Education. Course offerings range from non-credit classes to certificate (CEU) courses. Additionally, thousands of employees receive customized training annually through grants or contract training partnerships with area businesses.

Early Childhood Education Center

The Louisiana Tech University Early Childhood Education Center, operated by the School of Human Ecology, is a model education program for 3- and 4-year-old children. The center offers two half-day sessions during Fall, Winter, and Spring Quarters. The center serves as a learning lab for students enrolled in Family and Child Studies programs and as a clinical experience site for students enrolled in the Early/Elementary Education (PK-3) program. In addition, students from a number of disciplines observe and participate in educational programming at the center. The 5-star center is a Louisiana Class A licensed center and is accredited by the National Academy of Early Childhood Programs Division of the National Association for the Education of Young Children.

Experiential Education Programs

Experiential Education Programs at Louisiana Tech University are designed to provide quality-structured, supervised experiences for qualified students in their chosen professional fields. Experiences include practica, internships, cooperative education, clinicals, and student teaching. In many majors, the experiences are degree requirements; in other majors, the experiences are optional for students who choose to participate. Such experiences will enhance employment opportunities for students and carry academic credit. These programs also serve as an opportunity to integrate the theoretical principles studied in the classroom with the practical knowledge gained from on-the-job performance. Experiential Education Programs are provided in each academic college for a variety of academic majors. The availability of department or college opportunities should be discussed with the respective program director or department head.

Institute for Micromanufacturing (IfM)

Since its inception over a decade and a half ago, the Institute for Micromanufacturing (IfM: http:www.ifm.latech.edu) has been in the forefront of integrated multidisciplinary research, education, and technology commercialization. Starting from its original micromanufacturing emphasis, the Institute's research and educational efforts have grown and expanded significantly to its current five thrust areas of emphasis, identified as Nanotechnology, Biotechnology, Biomedical Nanotechnology, Environmental Technology, and Information Technology. The activities carried out through these thrust areas, coupled with the Institute's integrated nanomanufacturing and micromanufacturing resources, have led to the realization of a broad range of research, educational and commercialization efforts. These include the development of novel micro/nano scale systems for biomedical, biological, environmental, chemical, information technology, and other applications.

- Biological, Chemical, and Physical Sensing
- Artificial Cells, Drug Delivery, and Other Biomedical Applications
- Energy and Environmental Applications
- Multiscale Systems for Energy and Defense Applications
- Wireless Micro/Nanosensor Networks

The Institute's vision is to be a world class resource for the realization of commercially viable micro and nanosystems, contributing to the economic infrastructure of Louisiana and the nation and benefiting humanity as a whole

There are over 25 faculty, postdoctoral scholars and engineering support staff associated with the IfM. The Institute faculty and staff have training and expertise in a wide range of science and engineering fields, including chemistry, physics, biology, materials science, mathematics and statistics, biomedical engineering, chemical engineering, electrical engineering, mechanical engineering, and civil engineering.

A total of over 100,000 sq. ft. is available to support research and development in these areas. Facilities include the 40,000 sq. ft. R & D facility, the 50,000 sq. ft. Biomedical Engineering Center (adjacent and connected); the X-ray beam lines and lithography processing facility at the Center for Advanced Microstructures and Devices (CAMD) in Baton Rouge, LA; and the Louisiana Tech University - Shreveport Center in the Shreve Industrial Park in Shreveport, LA. The R & D user facility is housed in a modern 41,000 sq. ft. building, designed specifically for research and development in micro/nano scale technologies and systems. The R & D complex includes classroom and conference rooms, faculty and staff offices, research and instructional laboratories, and a 144-seat auditorium. Laboratories occupy 20,000 sq. ft. of environmentally controlled workspace, and contain 5,000 sq. ft. of modular clean rooms. The laboratory facilities provide a full suite of micro- and nanomanufacturing capabilities, and a comprehensive set of measurement and characterization tools, as well as modeling and simulation software. ifm-marketing@latech.edu or IfM: http:www.ifm.latech.edu.

Integrated STEM Education Research Center (ISERC)

Louisiana Tech's College of Engineering and Science has been aggressively engaged in education reform, including curricula redesign, K-12 interactions, and research in teaching and learning. ISERC is a leader in reinventing engineering and science education to meet the regional, national, and global challenges of the 21st century. Building on the past successes of multidisciplinary collaborations at Louisiana Tech, ISERC is focused on the following objectives:

- To serve as a catalyst for future research in engineering and science education at Louisiana Tech and throughout the nation,
- To provide a focal point for continued multidisciplinary collaboration in engineering and science education reform,
- To nationally disseminate innovative practices in engineering and science education, and
- To promote a culture of educational innovation among all engineering and science faculty.

Lomax Hall Horticultural Conservatory

The public is welcome to visit the Lomax Hall Conservatory and greenhouses. The Conservatory contains a permanent collection of tropical flowering and fruiting ornamental plants enhanced by seasonal displays of poinsettias, chrysanthemums, bulbs, and bedding plants. The greenhouses are used for educational, teaching, and research ac-

tivities including propagation, production, and demonstration. The Agricultural Sciences Department provides assistance with individual or group tours.

Louisiana Forest Products Development Center (LFPDC)

The Louisiana Forest Products Development Center (LFPDC) is part of the School of Forestry, Louisiana Tech University, and the School of Renewable Natural Resources, LSU Ag Center. The Center attempts to not only develop new technology and products that will add value to forest products, but assure that it is adopted and put into the marketplace and ultimately made available to the consumer, thus improving quality of life for the consumer and improving the economy of the state. The LFPDC was originally established by the Louisiana Legislature as the Louisiana Forest Products Laboratory at both the LSU Agricultural Center and Louisiana Tech University, to provide technical assistance and help in development of value-added processing. To address the needs of Louisiana, the scope of the Lab was broadened in 1994 to include the whole value chain from the forest to the consumer. Overall, the goal of the LFPDC is to aid the state's economy and well-being of its people through forest sector development. Visit our websites: www.lfpdc.lsu.edu or www.forestry.latech.edu.

Louisiana Tech Astronomy Facilities

The astronomy facilities of Louisiana Tech can be used for classroom and laboratory instruction and also for instructional demonstrations to visiting school groups and interested public groups. The facilities at the present time include a Planetarium on the main campus and an Observatory at the Research Park located about 11 miles west of the main campus. The observatory has an eleven-inch reflecting telescope maintained by the Physics Department. A 10-inch Smidt-Cassagrainian mount telescope is also in use.

The Planetarium seats 120 people under its 40-foot diameter dome. A Spitz A4-type instrument projects the sun, moon, and planets as well as about 3,000 visible stars, giving a correct and realistic simulation of the celestial view. The star projector combines with twelve automated slide projectors and a video projector to give visitors an impressive multimedia experience synchronized by a state of the art Theater Control System designed to present accurate, up to date astronomical information. Over 15,000 K-12 students visit the facility each year. Tech students utilize the facility for both academic and leisure activities. The annual Christmas shows attract large numbers of students as well as people from the surrounding communities. www.latech.edu/planetarium

Louisiana Tech Concert Association (LTCA)

The Louisiana Tech Concert Association (LTCA) seeks to enrich the lives of Tech students and members of the various communities with North Central Louisiana by bringing to Howard Auditorium the world's best music, dance, and theatre as performed by professional artists. LTCA is managed through the School of the Performing Arts. For more information regarding current programming, access the following website: performingarts.latech.edu

Louisiana Tech Enterprise Center (LaTEC)

The Louisiana Tech Enterprise Center (LaTEC) opened for business in November of 2005 on the north side of the Louisiana Tech University campus. Our headquarters is located at 509 West Alabama, but in February 2007 we added additional space in the new Biomedical Engineering Building next to the Institute for Micromanufacturing (IfM) and Collaboration Alley. LaTEC (www.enterprise.latech.edu) houses the Louisiana Tech Technology Incubator (LTTI) and the Technology Business Development Center (TBDC). As the primary business support and development outreach arm of the University, LaTEC is designed to facilitate and promote the growth of new and existing ventures in the innovation enterprise in the I-20 corridor of north Louisiana.

The Center's incubation space and business development services are focused on early-stage technology companies with a connection to Louisiana Tech University. In addition, the outreach activities and services of LaTEC, primarily through the TBDC, serve clients throughout the I-20 corridor of north Louisiana. Under certain circumstances this region can be expanded to include companies or prospective companies in any other Louisiana parish or, for certain limited services, to prospective companies interested in locating in north Louisiana. The services of the TBDC are provided to primarily technology businesses. A technology business is a business that derives the majority of its gross receipts from the design, development or creation (for lease, sale, or license) of technology-based products, processes or related services.

In addition to low-cost office space, shared equipment, research and product development facilities, and a synergistic work environment, LaTEC offers an extensive array of services to client businesses. These services are organized into seven tiers: (1) Entrepreneurial Infrastructure, (2) Entrepreneurship Development, (3) Venture Exploration, (4) Planning Startup, (5) Startup, (6) Growth and Expansion, and (7) Exit.

Louisiana Tech Museum

The Louisiana Tech Museum was established July 1, 1982, with the objectives of fostering scholarship at the University, encouraging research by faculty and students, helping educate area school children, and being a cultural center for the region. Numerous exhibits represent the fields of anthropology, archaeology, architecture, art, biological sciences, geology, history, and technology. More than 10,000 artifacts are included in the Indian collections. The museum is not just for viewing but is also a place where study and research can be conducted.

Louisiana Tech Speech and Hearing Center

The Louisiana Tech Speech and Hearing Center provides diagnostic evaluations and treatment for Louisiana Tech students, as well as individuals of all ages with speech, language, and/or hearing disorders. Located in Robinson Hall, the Center accepts referrals from all sources for its services, which include speech, language, and hearing evaluations; hearing-aid evaluation/dispensing; speech-language therapy; and aural rehabilitation. These services are provided by graduate student clinicians under the direct supervision of faculty who are licensed and hold the Certificate of Clinical Competence in Speech-Language Pathology and/or Audiology awarded by the American Speech-Language-Hearing Association. For more information, contact the Speech Department at (318) 257-4764.

Louisiana Tech Teachers' Institute

The Teachers' Institute reflects Louisiana Tech University's long-standing commitment to promoting and enhancing the quality of elementary and secondary education. The primary purposes of the Institute are to provide a formal linkage between faculty in Applied and Natural Sciences, Liberal Arts, Engineering and Science, Business, and Education with public school teachers; to provide a university structure for the development of faculty joint projects; and to provide an administrative structure for the development of grant proposals. Faculty expertise in the various discipline areas are made available to teachers through workshops, courses, and other activities. Specifically designed courses are taught by the faculty to expand the teachers' knowledge base and to up-date them on the latest developments in the field.

Louisiana Tech University - Shreveport Center

The Louisiana Tech University - Shreveport Center is located in a modern educational facility with distance learning capabilities. Louisiana Tech University offers selected undergraduate and graduate coursework, workshops, and conferences addressing the educational needs of northwest Louisiana. The Shreveport Center serves as a partner with business, industry, and the medical community in economic development activities related to engineering and technology.

Museum of Fashion and Textiles

The Museum of Fashion and Textiles at Louisiana Tech University was established to preserve and exhibit the fashion heritage of the North Louisiana area. The collection, initiated in 1976 as a result of a donation of fifty garments from the private collection of Virginia Laskey of Ruston, was organized formally as a museum in 1983. Items include: (1) Fashion, or costumes, and accessories, (2) Textiles, and (3) Paper (patterns, magazines, catalogs, and photographs). Since 1993, the Museum has been housed in the School of Human Ecology, located in Carson Taylor Hall. In 2000, the Museum inherited a vast collection of treasures from the estate of Winifred Spencer Williams, which increased the collection size to over 3,000 pieces. The collections represent a comprehensive array of women's fashions from the late 19th Century and the 20th Century. The collections are an educational tool for university classes. Students have the opportunity to view dress from 1880 until the present. Historical and documentary research is possible in the areas of conservation, preservation, environmental conditions, or a particular facet of fashion and fabric design. Periodic exhibits are open to the public and private showings/seminars are also available. Contact the School of Human Ecology (318-257-3727) for more information.

NASA Educator Resource Center (NASA ERC)

The NASA Educator Resource Center is a repository of exemplary science and math materials made available to educators by NASA. Louisiana Tech was selected by NASA in 1999 to serve as the host institution for the ERC serving the entire state of Louisiana. The ERC is housed in the College of Education under the umbrella of SciTEC. www.scitecatlatech.weebly.com.

Pre-Professional Programs

Louisiana Tech University provides excellent preparation for the student planning a career requiring advanced study in specialized programs.

Pre-Law

Because of the diversity and complexity of this discipline, there is no single curriculum or course of study which is prerequisite to or guarantees success in law school. Students who intend to study law are referred to the Pre-Law concentration in the Department of Social Sciences, College of Liberal Arts. A choice can then be made based upon personal preference and future goals.

Pre-Medicine and Pre-Dentistry

In pre-medical and pre-dental preparation, a student's academic major need not be one in a field of science; however, experience shows that the majority of applicants to medical or dental school will have a science major. Students are urged to follow their personal inclinations in selecting a major, recognizing that a physician or dentist should have a broad educational background.

The Pre-medical and Pre-dental Advisory Committee is composed of faculty members representing the disciplines of Biomedical Engineering, Biological Sciences, Chemistry, and English-Honors. Students should select a major and plan a course of study in consultation with a pre-medical or pre-dental advisor.

The minimum requirements for most medical and dental schools include one year each of Biology with lab, General Chemistry with lab, Organic Chemistry with lab, General Physics with lab, Mathematics, and English. Also, applicants are required to submit scores on the Medical College Admission Test (MCAT) or the Dental Admission Test (DAT). The test should be taken in the spring of the junior year prior to application. It is strongly suggested that these examinations not be attempted until courses in genetics, animal physiology, organic chemistry, biochemistry, and physics have been successfully completed.

In the spring of each calendar year, personal interviews are conducted by the Pre-medical and Pre-dental Advisory Committee for the purpose of evaluating those students preparing to make formal application to either dental or medical school. This interview is a very important part of the student's application process. After the interview, the Committee prepares recommendations that will be forwarded to the Admissions Committee of the professional schools to which the student has applied.

Alpha Epsilon Delta (AED) is a national pre-medical and pre-dental honor society which is open to students possessing a minimum grade point average of 3.20 and at least 40 semester hours of course work.

Pre-Veterinary Medicine

Students wishing to pursue a career in veterinary medicine are referred to the Pre-Veterinary Medicine Concentration in the Animal Science curriculum. Those who have earned an exceptional grade point average and an acceptable score on the Graduate Record Examination (GRE) may wish to apply for admission to veterinary school during their junior year. These students may become candidates for the B.S. degree in Animal Science after completing the first year of work at a veterinary school.

For assistance in planning a course of study, students should consult with the Pre-Veterinary Medicine advisor in the Department of Agricultural Sciences, College of Applied and Natural Sciences.

Other Health Science Programs

Louisiana Tech offers degree programs in the health science areas, including Nursing, Dietetics, Health Informatics and Information Management, and Medical Technology.

Nursing: Advisors for the Associate Degree program in Nursing are located in the Division of Nursing, College of Applied and Natural Sciences.

Dietetics: Programs in Dietetics include an undergraduate didactic program, a post-baccalaureate internship, and a graduate program. These programs are housed in the School of Human Ecology, College of Applied and Natural Sciences.

Child Life: Child life, a concentration within the Family and Child Studies degree program, prepares students to obtain an internship and take the exam to become a Certified Child Life Specialist, working with hospitalized children and their families. The program is housed in the School of Human Ecology.

Health Informatics and Information Management: A baccalaureate program is offered both on campus and electronically. The Master of Health Informatics is offered only electronically through the Department of Informatics and Health Information Management, College of Applied and Natural Sciences.

Medical Technology is a baccalaureate degree program located in the School of Biological Sciences, College of Applied and Natural Sciences.

In addition, there are many other health careers for which Louisiana Tech can offer prerequisite courses to prepare students to enter a professional program at another institution. These pre-professional areas are listed below with the department and college in which they are offered:

Cytotechnology, **nuclear medicine technology**, **respiratory therapy**, **histological technology**, **physician's assistant**, **occupational therapy**, **physical therapy**, **surgical assistant**, and **radiologic technology** preparation is offered in the School of Biological Scienc-

es, College of Applied and Natural Sciences.

Pre-Optometry and **Pre-Pharmacy** are in the School of Biological Sciences, College of Applied and Natural Sciences.

Pre-Professional Speech-Language Pathology is in the Department of Speech, College of Liberal Arts.

Students interested in any of the health science programs listed above should contact the department head in whose department the curricula are shown.

Office of Professional Education Outreach (OPEO)

Louisiana Tech University believes that one of our most important roles within the education community is to work closely with our K-12 partners to address the ever-changing needs of the schools who are working to produce students who are academically, personally, and socially prepared to be successful in the post-high school world. To that end, the College of Education has taken the lead in the development and delivery of a variety of professional development courses designed to strengthen the content knowledge and pedagogical skills of classroom teachers in Louisiana.

In an effort to be more responsive to the expressed needs of our K-12 partners, the College of Education established the Office of Professional Education Outreach. Operated through our Science and Technology Education Center, this office serves as an initial point of contact for schools and school districts seeking professional development services available through the College of Education at Louisiana Tech University. www.scitecatlatech.weebly.com.

Prescott Memorial Library

Centrally located in the heart of campus activities, Prescott Memorial Library offers a full array of information resources and services.

The Library houses an extensive and well-balanced collection of informational sources including over 3.7 million volumes, over 2,700 current periodical subscriptions, over 40,000 maps, and extensive electronic resources. Tech's library is one of only forty-seven U.S. Government Regional Documents Depositories, and it is a historical depository for Louisiana State Documents, USGS Maps, and Department of Energy Contractor reports. Other facilities within the library include the Electronic Reference Center with 35 computer workstations for research, the Electronic Classroom with workstations for library instruction, and the Student Technology Laboratory with over 50 computer workstations providing Internet access and productivity software. Secure wireless network access is available on all floors.

Many library services and resources are located on the main floor, easily accessible upon entering the building. Included on the main floor are reference, government documents and reserve book collections, as well as the Electronic Resource Center, the Circulation Desk, and to assist with reference inquiries, the Information Desk.

The third floor contains the complete periodical collection including microforms and the Forestry Library. Upper floors (five-nine) house the main book collection and provide quiet study space for group and individual use.

Located on the fourth floor are collections for more specialized research. The American Foreign Policy Center is a continuing collection of microfilmed primary source material for the study of U.S. foreign policy. The Department of Special Collections, Manuscripts, and Archives is comprised of the University Archives, the Forestry Archives, the William King Stubbs Architectural Archives, the Camp Ruston collection, Frellsen Fletcher Smith Literary Collection, and other manuscript collections documenting the history of the University and the region, as well as rare books, maps, and other materials.

The library's faculty and staff welcome the opportunity to serve the students and faculty of the Louisiana Tech University academic community. The library home page is www.latech.edu/library.

Professional Development and Research Institute on Blindness

This Institute builds on a long standing relationship with the Louisiana Center for the Blind and Louisiana Tech. Its primary focus is initiatives on professional development opportunities for teachers of the blind, development of appropriate curricula and materials for these individuals, development of curricula for preparing teachers of the blind, research on issues of education for blind persons, and dissemination of research and development results. The overall goal of the Institute is to advance the blindness field by providing the blind and professionals serving the blind with innovative programs and conducting meaningful research that will empower blind people to live independent and productive lives. The Institute is designed to address the needs of the over 16,000 Louisiana blind citizens who have significant education/training needs, and works to expand these possibilities through nationwide training and research as well.

Psychological Services Clinic (PSC)

The Psychological Services Clinic (PSC) is part of the Psychology and Behavioral Science Department. The PSC offers affordable psychological counseling and assessment services to members of the community. The PSC is staffed by doctoral students who are supervised by licensed psychologists.

School of Art Galleries

To promote the understanding of contemporary art, the School of Art administers two galleries within the F.Jay Taylor Visual Arts Center. Artists from across the United States annually display a wide variety of creative work chosen by the Gallery Committee. The galleries offer receptions for the artists where visitors may converse with and/or listen to lectures from the exhibiting artists. Admission is free and open to the public.

Science and Technology Education Center (SciTEC)

SciTEC is an active outreach program of the College of Education organized to serve the surrounding school systems and communities. Activities of the Center include six broad initiatives: professional development programs for in-service teachers, collections of exemplary math and science materials, exemplary undergraduate math and science education, the IDEA Place and Planetarium, the NASA Education Resource Center, and community outreach activities. www.scitecatlatech.weebly.com

Spatial Data Lab (SDL)

The Spatial Data Lab (SDL), created in 1999, is a state-of-the-art high tech facility used for teaching and research purposes. The SDL has 25 PC's running Windows 7, arranged around 5 large workstation tables. Geospacial computing programs such as ArcGIS and ERDAS Imagine and Pathfinder Office are loaded on all machines and are kept up-to-date with the latest software releases. The SDL maintains a GIS server which is used to publish geographic data and maps to other labs and to the internet. A full complement of GPS equipment, from small handhelds to survey grade rovers are used at the SDL for teaching and research. For hardcopy data input and output needs, the SDL houses a large format scanner and a large format color plotter. The SDL hosts numerous GIS training options ranging from academic to continuing education courses offered in either traditional and distance learning formats. For more information about the SDL, contact the School of Forestry Office at (318)257-4985.

Study Abroad Programs

Louisiana Tech University encourages its students to participate in varied educational experiences including academic programs that foster opportunities for culturally enriching experiences outside the

United States. The University currently offers several avenues for study abroad:

- The University offers specialized study abroad courses or programs through individual academic units at Louisiana Tech University. Some current offerings include study abroad opportunities to Costa Rica (Foreign Languages), London (Theater and English), Florence (History), and Paris (Art). Proposals for these courses or programs are reviewed by the College Review Tour Committees and the University Tour Committee.

In order to further the international education of its student body, the University has available Summer Study Abroad Scholarships. These scholarships are offered competitively on an annual basis to students of junior or senior standing seeking to enrich their educational experience by participating in an international travel program while taking courses in their major field of study. Finalists are interviewed by the Committee on International Education. Information and application requirements can be found at: www.latech.edu/administration/academic-affairs/ug-study-abroad-scholarship

- CODOFIL, the Council for the Development of French in Louisiana (www.codofil.org) and MICFA, the Interuniversity Mission for the Coordination of Franco-American Exchanges provide opportunities for study at sixteen universities in and around Paris, France. www.micefa.org
  - Louisiana Tech University is a member institution of two organizations which offer students a wide variety of already-developed study abroad opportunities at locations throughout the world: Council on International Educational Exchange www.ciee.org and The Institute of International Education www.iie.org.
  - For additional information about study abroad opportunities, contact the Director of Study Abroad Programs at Louisiana Tech University, Study Abroad Office, P. O. Box 10018, Ruston, LA 71272; or by calling (318) 257-2660.

Technology Business Development Center (TBDC)

The Technology Business Development Center (TBDC) supports and facilitates the establishment, growth, and success of technology-based businesses along the I-20 corridor. The Center provides information, counseling services, and educational opportunities for entrepreneurs that are planning, starting, growing, operating, or exiting technology-oriented business enterprises in the region. This Center generates and disseminates information about the entrepreneurial infrastructure in north Louisiana. The TBDC advocates for entrepreneurship, promotes innovation, increases awareness of entrepreneurship, and encourages the exploration of innovative opportunities. Basic assistance for startups and continuing management support for new ventures, growing firms, and mature operations is provided by the TBDC. Assistance and support available through the Center are specifically tailored to meet the needs of entrepreneurs who are investigating and pursuing business enterprises based on useful new technologies or unique applications of technology that have the potential to create high quality employment opportunities in Louisiana. www.enterprise.latech.edu

The IDEA Place

The IDEA Place (Investigate, Discover, Explore, Ask) is a hands-on children's museum designed to provide children and adults an opportunity to experience the excitement of learning about mathematics and science through interactive activities. School groups visit on field trips while pre-service education majors serve as guides. Education majors are encouraged to interact with students and gain valuable pre-student teaching experiences as children explore a variety of phenomena.

The essence of the IDEA Place is its interactive exploration of scientific phenomena. The Center houses the Experiment Gallery, a collection of over 35 interactive hands-on exhibits designed by the Science Museum of Minnesota. The Experiment Gallery features exhibits in each of the following theme areas: Electricity, Weather, Sound and Waves, Light and Optics, and Mechanics. Also found in the museum are exhibits from the Exploratoriun in San Francisco, and the Oregon Museum of Science and Industry (OMSI). At the Activity Station, preservice teachers provide opportunities for visiting groups to see scientific demonstrations and for participation in a variety of experiments. The Resource Room is available for visitors to further explore topics of interest. Over 10,000 K-12 students visit the IDEA Place each year. www.scitechatlatech.weebly.com.

Trenchless Technology Center (TTC)

The Trenchless Technology Center (TTC: ttc.latech.edu) is a university/industry cooperative research center under the College of Engineering and Science. The Trenchless Technology Center (TTC) was initiated as the Trenchless Excavation Center in 1989 and formally established as the Trenchless Technology Center in November 1991. In addition to its research activities, a strong effort has been focused towards the education of engineers, contractors, government agencies and others about the availability and capabilities of trenchless methods for the solution of difficult underground infrastructure problems.

The strategic directions of the TTC are guided by an active Industry Advisory Board (IAB) which also provides core financial support for the Center. The Center currently has 41 Board members.

The faculty members associated with the TTC represent engineering, chemistry, computer science, mathematics, physics, and statistics. While concentrating on below-ground infrastructure, the Center's activities in recent years have had broad application to a wide range of urban infrastructure systems and green construction materials.

In 2007, the National Trenchless Technology Facility (NTTF) was dedicated. Built and equipped almost entirely with private funds, this is a one-of-a-kind 5,140 sq. ft. facility includes a 3,430 sq. ft. high-bay research laboratory with overhead crane, 3 foot-thick strong floor, two soil test chambers (a large one, 20 ft x 20 ft x 11 ft high, and a small one, 12 ft x 6ft x 4 ft high) that facilitate academic and prototype development studies related to the design procedures and performance of underground utility installations. Adjacent to the NTTF is a field testing site of approximately 70,000 sq. ft. has been used for a variety of field tests related to HDD research, pipe systems and ground movements associated with upsizing during pipe replacement, etc. Additional laboratories are housed in the Bogard Hall building. Materials Characterization Lab has been used for testing the short- or long-term pressure response of a variety of pipes and pipe lining systems, and Rheology Lab for HDD drilling fluid properties. State-of-the-art Electromagnetic Lab is an advanced research and testing facility for developing sensors for trenchless applications. Research activities at the Center are supported by the National Science Foundation (NSF), the Louisiana Board of Regents, other State agencies, and industrial partners.

Chapter 8 – Bulldog Achievement Resource Center (BARC)

Administration

Interim Director, Bulldog Achievement Resource Center
Stacy C. Gilbert

The Bulldog Achievement Resource Center (BARC), provides substantial academic and co-curricular support for first-year and continuing students. Students can receive academic advising and other assistance in the BARC and the BARC; in fact, the staff advises all students who have not decided upon a major, working closely with other departments across the University to help them choose a major. The BARC staff has established relationships with student affairs, financial aid, the registrar, career and personal counseling, residential life, the academic colleges, and many other entities so that students can be directed to and receive any academic and co-curricular assistance that they may need to succeed.

Three main categories of students are served in the Division of Basic and Career Services:

1. First-year students who have not yet decided upon a major and who are exploring;
2. Students who previously had declared a major but need time to consider changing to another major; and
3. Students who have not met specific academic requirements for placement in a major and need a home until grade point average and other requirements are met.

Bulldog Achievement Resource Center (BARC)

The Bulldog Achievement Resource Center (BARC), located on the main floor of Wyly Tower, provides learning assistance in a variety of classes, including tutoring in math (including basic), chemistry, physics, biological sciences, and English and supplemental instruction (SI) in a few courses that have been historically difficult for students. The Writing Center is also housed in the BARC. It provides writing assistance to students for any course at Louisiana Tech that requires completion of formal writing assignments. The BARC also functions as a clearinghouse of information for students, provides supplemental advising in some academic areas, and refers students to other campus-based student services.

The BARC administers the UNIV 100 and 101 (University Seminar) classes which new first-year and transfer students are placed during their first quarter at Louisiana Tech. These seminar classes continue the student 'connection' process started during the summer orientation that many new students attended in the summer before enrolling full-time at Tech. Not only are students reintroduced to Louisiana Tech and the opportunities, responsibilities, and regulations but also to topics, such as time management, study skills, and diversity, which can help new students be successful after their Tech experience has begun.

Also housed in the BARC is the First-Year Experience (FYE) program, a collaborative effort with the Division of Student Affairs. The FYE program goals and priorities are closely related to those of the BARC, and it provides opportunities for new students to be introduced to and experience life at Louisiana Tech through activities designed specifically for first-year students. The First-Year Convocation, held on the night before classes begin in the fall quarter, is a forum for new Tech students to meet the academic leaders of the University, to learn about and begin to appreciate the Tenets of Tech – twelve guiding principles that students should aspire to uphold during their academic career at Tech and beyond, and to participate in their first Louisiana Tech tradition by depositing the Tech Medallion into the Lady-of-the-Mist fountain as a symbol of their investment in their academic pursuits, with the promise to return to each of them a medallion inscribed with their graduation year upon their graduation from Tech.

The FYE program also promotes the First-Year Common Read, a book that new students are expected to read and discuss as part of their University Seminar class. This Common Read discussion is often enhanced by contracted speakers who are associated with or discuss topics related to the Common Read book or by other activities that emphasize the theme of the Common Read.

Additionally, the FYE program works closely with other organization or departments, such as athletics, residential life, and the Student Government Association, with established activities for new Tech students. The FYE promotes these activities to first-year students and encourages them to participate.

For additional information about the BARC and the FYE program, view their web pages at www.latech.edu/barc and www.latech.edu/fye or call about either program at (318) 257-4730.

Developmental Education Program

This program is intended to assist academically under prepared students in developing their abilities to meet the requirements of college-level courses. If students are not prepared to attempt college-level work in English or math as determined by their math or English ACT subscore, their SAT math or writing subscore, or their ACT COMPASS placement score for the math or writing skills, then they are placed in the developmental English (ENGL 099) or developmental math (MATH 099) course. Their progress in completing a developmental course is monitored by BARC staff.

A student must register for and successfully complete all required developmental courses within the first four quarters of enrollment at Louisiana Tech University. A maximum of three (3) attempts (including drop "W" attempts) will be allowed for the course. The student will be suspended from the University for failing to meet developmental course completion requirements if successful completion is not achieved after a maximum of three (3) attempts, or if the four-quarter time limit is not met. Students will not be permitted to declare and register for a degree program until developmental program requirements are successfully completed.

Class attendance in the Developmental Education Program is mandatory. After four (4) unexcused absences, the student will automatically be given a grade of "**F**" in the course. Withdrawal from the developmental education classes will not be permitted unless there are extenuating circumstances. If a student needs to reduce his or her course load, the student will be required to drop any regular courses before any course in the Developmental Education Program is dropped.

If a student is suspended for failure to meet developmental course completion requirements, he or she may appeal for reinstatement to the Developmental Suspension Appeals Committee, chaired by the Director of the Bulldog Achievement Resource Center. If a student elects to appeal, the appeal should be submitted before the suspension quarter begins so that it can be acted upon by the Developmental Suspension Appeals Committee by noon on the day of General Registration/Fee Payment. If the appeal is approved by this committee, the Director will notify the University Registrar, and the reinstated student's registration status will be activated.

No credit is allowed in any curriculum for any courses with a catalog number beginning with 0 (e.g., English 099 or Math 099).

Chapter 9 – Department of Air Force Aerospace Studies

Administration

Professor of Aerospace Studies
Lt Col Devin M. Kudlas, USAF

Address

More information about the Department of Air Force Aerospace Studies can be obtained by writing:

Department of Air Force Aerospace Studies
P.O. Box 3154
Louisiana Tech University
Ruston, LA 71272
(318) 257-4937/2740

or visiting www.latech.edu/tech/afrotc

General

Air Force ROTC is open to all students in any major pursuing a bachelors, masters, or doctoral degree.

Purpose

The Mission of Air Force ROTC is to train students to become future leaders in the U.S. Air Force. AFROTC provides instruction and experience to all cadets in a diversified university environment so they can graduate with the knowledge, character, and motivation essential to becoming leaders in the world's greatest and most respected Air Force. Individuals who successfully complete either the three- or four-year program will be commissioned as Second Lieutenants in the U. S. Air Force.

Objectives

Air Force ROTC Detachment 305's objective is to recruit, select, educate, and commission quality officer candidates.

Requirements for Admission

General Military Course (freshmen and sophomores): Enrollment requirements are as follows:

1. possess good moral character,
2. must meet age requirements for commissioning,
3. be medically qualified, and
4. be admitted to the University as a regular full-time student.

Professional Officer Course (juniors and seniors): Students are selected for the POC on a competitive basis. In addition to those requirements mentioned for the GMC, entrance into the POC requires that a student be a U. S. citizen; meet mental and physical requirements for commissioning; have satisfactorily completed approximately 60 semester hours toward his or her degree; and be in good standing in the institution. Those enrolled in the POC will sign an oath of allegiance to the U. S. and receive a monthly monetary stipend.

Application Requirements

There is no application procedure for the four year program. Students may simply register for Air Force ROTC in the same manner and at the same time they register for other college courses.

Three- and Four Year Program: This is divided into two distinct categories the General Military Course (GMC) and the Professional Officer Course (POC). Any university student may enroll in the GMC. Enrolling in the GMC incurs no military obligation unless on scholarship status. Students may then compete for entry into the POC during their last two years of college. Selection into the POC is highly competitive and is based upon qualification after an Air Force medical examination, scores achieved on standardized tests (the Air Force Officer Qualifying Test (AFOQT), SAT, or ACT), grade-point-average, physical fitness test, and successful completion of a Field Training course.

Leadership Laboratory Training

In addition to academic training, enrollment in the corresponding Leadership Laboratory is open to students who are members of the Reserve Officer Training Corps or are eligible to pursue a commission. Leadership Laboratory consists of physical, military, and leadership training including the operation of the Cadet Corps. The Cadet Corps is comprised exclusively of cadets. All plans and programs are developed and executed by The Cadet Corps.

Field Training

All cadets must complete Field Training which consists of academic work, orientation to the Air Force environment, and traditional military training. Three- and four-year program cadets attend four weeks of Field Training, normally between their sophomore and junior years.

Requirements for Commission

Upon completion of the AFROTC Professional Officers Course and receipt of a baccalaureate degree, cadets are eligible for commission as Second Lieutenants in the United States Air Force.

Monetary Allowance While in the POC

All POC members receive a monthly tax-free stipend during this two-year course. Currently students enrolled in the first year of the POC (typically juniors) receive a $450 monthly stipend while students enrolled in the final year (typically seniors) of the POC receive a $500 monthly stipend.

College Scholarship Program

Each year the Air Force awards a number of four-, three-, and two-year scholarships on a competitive basis to highly qualified students. Scholarships provide full tuition, most laboratory fees, textbook, and incidental fees, and out-of-state fees if applicable, plus $300 to $500 per month for 10 months each year the scholarship is in effect. Louisiana Tech supplements high school AFROTC scholarship winners and in-college scholarship recipients with full room and board as an incentive for coming to Tech. An AFROTC college scholarship recipient in any four-year degree program must not turn 31 years of age before December 31 of the year of commissioning.

Books and Uniforms

All uniforms and textbooks required for AFROTC courses are furnished by Louisiana Tech and the U. S. Air Force.

Extracurricular Activities

AFROTC sponsors a number of organizations that provide avenues for further personal development for qualified and interested cadets.

- **Arnold Air Society**. The Emmett O'Donnell Squadron of the Arnold Air Society is an organization dedicated to promoting a better understanding of the role of air power in the aerospace age. This is a national honorary society limited to selected cadets who demonstrate outstanding academic and leadership traits.
- **Honor Guard**. The Valkyrie Honor Guard is a military group composed of cadets who perform a variety of ceremonial functions. Those include providing a color guard for campus and civic activities, giving precision drill exhibitions, and competing at the national level in drill competitions.
- **Orientation Flights and Air Base Visitation**. Members are afforded opportunities to fly in military aircraft for purposes of orientation and familiarization. Air Force base visitations are also offered and encouraged.
- **Formal Military Ball**. Cadets sponsor a formal Military Ball annually for the members of the Corps and their invited quests.
- **Intramural Sports**. AFROTC sponsors teams and individuals in all campus sports events.
- **Housing**. Dorm rooms can be reserved for ROTC cadets. Re-

quests for room availability must be made through detachment personnel.

- **Grambling State University (GSU) Students**. Air Force ROTC is open to GSU students through the Inter-institutional Cooperative Program (ICP). For more details, see Chapter 7 of this catalog for information on the Inter-institutional Cooperative Program between GSU and TECH.
- **University of Louisiana-Monroe (ULM) Students**. Air Force ROTC is open to ULM students through the *Detachment Crosstown Agreement to Extend AFROTC Instruction to Students at Institutions Not Hosting AFROTC*. Admission, enrollment, tuition and fee payments are handled in accordance with the provisions of the signed agreement.
- **Northwestern State University (NSULA) Students**. Air Force ROTC is open to ULM students through the *Detachment Crosstown Agreement to Extend AFROTC Instruction to Students at Institutions Not Hosting AFROTC*. Admission, enrollment, tuition and fee payments are handled in accordance with the provisions of the signed agreement.
- **Academic Credit**. The classroom work in both the General Military and Professional Officer Courses is classified as elective work and is credited in varying amounts, depending on the student's degree program. Students should consult with the dean of their particular college if in doubt of the amount of credit allowed.

Aerospace Studies Curriculum Requirements

Freshmen Year
Aerospace Science 125, 126, 127 3
Leadership Lab 155, 156, 157.....0

Sophomore Year
Aerospace Science 225, 226, 227 3
Leadership Lab 255, 256, 257.....0

Junior Year
Aerospace Science 331, 332, 333 6
Leadership Lab 351, 352, 353.....0

Senior Year
Aerospace Science 431, 432, 433 6
Leadership Lab 451, 452, 453.....0
Graduate with Academic Degree

Minor in Aerospace Studies (AFAS)

This minor consists of 12 credit hours of upper-level ROTC classes (331, 332, 333, 431, 432, and 433) and 9 credit hours in one of the following areas of study (special authorization can be given by AFROTC to substitute new courses or courses offered on a one time basis that complement the minor): All courses applied toward the minor must be completed with the grade of "**C**" or higher.

History (HIST)

402 History of American Foreign Policy, 466 Contemporary America, 467 Vietnam, Watergate & After, 472 History of American Ideas.

Political Science (POLS)

201 National Government in the United States, 302 Comparative Foreign Governments, 350 International Relations, 355 American Foreign Policy, 460 Politics of Developing Nations, 465 Asian Politics.

Foreign Language (FLNG, SPAN, FREN)

202 Intermediate Language, 200/300-level Language classes.

Sociology (SOC)

201 Principles and Elements of Sociology, 312 Race & Ethnic Relations, 345 Social Stratification, 360 Terrorism and Social Movements.

Management (MGMT)

201 Supervisory Techniques, 470 Human Resource Management, 475 Industrial Management, 476 Systems and Operations Management, 478 Seminar in Personnel and Industrial Relations, 485 International Business Management.

Geography (GEOG)

203 Physical Geography, 205 Cultural Geography.

English (ENGL) - Technical Writing

303 Technical Writing, 332 Advanced Grammar, 460 Advanced Technical Writing, 461 Technical Writing for Publication, 462 Technical Editing, 463 Scientific and Technical Presentations, 464 Occupational Technical Writing, 465 Specification, Bid, Grant, and Proposal Writing.

Chapter 10 – College of Applied and Natural Sciences

Administration

Dean
Gary A. Kennedy
Associate Dean for Undergraduate & Graduate Studies
Janet F. Pope
Associate Dean for Research
William J. Campbell
Department of Agricultural Sciences
VACANT, Head
School of Biological Sciences
William J. Campbell, Director
School of Forestry
Mark D. Gibson, Director
Department of Health Informatics & Information Management
Angela C. Kennedy, Head
School of Human Ecology
Amy Yates, Director
Division of Nursing
Donna G. Hood, Director

Address

More information about the College of Applied and Natural Sciences can be obtained by writing:

College of Applied and Natural Sciences
P. O. Box 10197
Louisiana Tech University
Ruston, LA 71272
(318) 257-4287

and/or visiting our web site at www.ans.latech.edu

Mission

The mission of the College of Applied and Natural Sciences is to provide high quality undergraduate and graduate education; to promote critical thinking, analytical reasoning and effective communication; to engage in research and disseminate knowledge; and to perform service for local, state, national and global communities.

Accreditations

- The educational program in Forestry leading to the professional degree of BSF is accredited by the Society of American Foresters (SAF). SAF is recognized by the Council for Higher Education Accreditation as the specialized accrediting body for forestry in the United States.
- The Health Informatics and Information Management program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM).
- The School of Human Ecology undergraduate programs are accredited by the Council for Accreditation of the American Association of Family and Consumer Sciences. The Nutrition and Dietetics undergraduate didactic program (DP) and the post-baccalaureate Dietetic Internship (DI) are accredited by Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. The Early Childhood Education Center is accredited by the National Academy of Early Childhood Programs Division of the National Association for the Education of Young Children (NAEYC).
- The Division of Nursing is accredited by the Accreditation Commission for Education in Nursing, Inc. (ACE) and has continued "full approval" by the Louisiana State Board of Nursing (LSBN).

Undergraduate Degrees Offered

Associate of Science in Nursing
- Nursing (2- year RN program)

Bachelor of Science
- Agricultural Business
- Animal Science
- Biology
- Environmental Science
- Family and Child Studies
- Geographic Information Science
- Fashion Merchandising & Retail Studies
- Nutrition and Dietetics

Bachelor of Science Forestry
- Forestry

Bachelor of Science Health Informatics & Information Management
- Health Informatics & Information Management

Bachelor of Science Medical Technology
- Medical Technology

These curricula provide well-balanced educational programs based on the professional needs of students. They include instruction in the natural sciences, the humanities, and the social sciences as well as a comprehensive education in one of the specialized fields of the college.

Minors Offered

Students pursuing an undergraduate major in any college may earn a minor in one of the following fields:
- Animal Science
- Biology
- Environmental Science
- Family and Child Studies
- Forestry
- Geographic Information Science
- Gerontology (interdisciplinary)
- Health Informatics and Information Management
- Human Nutrition
- Fashion Merchandising and Retail Studies
- Plant Science
- Wildlife Habitat Management

Specific requirements for each of these minors are identified in the departmental and school sections of the catalog. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirements of a minor.

Requirements for Admission, Graduation, and Transfer Credit

Students who meet the University admission criteria will be admitted to the College of Applied and Natural Sciences. Specific admission criteria have been established for some programs. These criteria are identified in the sections of this catalog describing the academic programs. Graduation requirements are the same as those for the University unless noted otherwise.

Candidates for admission to the College of Applied and Natural Sciences who have completed course work at another institution must submit an official record of that credit to Louisiana Tech University. This record will be evaluated by the department offering the program in which the candidate wishes to major. The evaluation will determine which curricular requirements of the program of study at Louisiana Tech have been satisfied by the student's prior course work. General education requirements are evaluated by the College of Applied and Natural Sciences. A grade of "**C**" or better is considered acceptable for transfer of credit for required or equivalent courses in the College of Applied and Natural Sciences degree programs.

Advising

Each student in the College of Applied and Natural Sciences is assigned an academic advisor. This advisor assists students in planning, implementing, and completing their programs of study as well as in career planning. Assignments are made to assure that students have advisors who have specialized knowledge in their fields of study. Students have the opportunity to change their advisor, and such changes can be initiated with the appropriate academic unit head.

Special Programs

Experiential/Cooperative Education

Students majoring in Agricultural Business, Animal Science, Biology, Environmental Science, Family and Child Studies, Forestry, Geographic Information Science, and Fashion Merchandising and Retail Studies may elect to participate in a cooperative education/internship experience one or more terms during their college careers. These students receive relevant work experiences while earning college credit. Some students are paid for their services.

These experiences are designed to develop professional competencies, to impart general and specific skills, to provide opportunities for application of theoretical concepts, and to assist students in the transition from college to employment. The work experience also may provide students an entree for their first job following graduation.

Experiential learning experiences occur beyond the north Louisiana area. Cooperative education and practical work experiences occur in a variety of locations both within and outside Louisiana. Nursing, Health Informatics and Information Management, Family and Child Studies (Child Life), and Nutrition and Dietetics students receive clinical instruction in varied health care facilities throughout north and central Louisiana. Medical Technology students complete clinical experiences in hospitals during their senior year. The Early Childhood Education Center serves as an early childhood demonstration laboratory for Family and Child Studies students. Students may travel to New York, Dallas and other fashion centers as part of the Fashion Merchandising and Retail Studies travel study. Students in programs in the Department of Agricultural Sciences have the opportunity to complete cooperative education experiences in agricultural industries. All programs require application and acceptance.

Facilities

Academic programs in the College of Applied and Natural Sciences are located in Carson Taylor Hall, George T. Madison Hall, and Wyly Tower on the main campus, as well as Reese Hall and Lomax Hall on the South Campus. In addition, numerous laboratory facilities in other buildings and at other sites enhance the instruction of students. Biological Sciences and Human Ecology are located in Carson Taylor Hall. Nursing is located in George T. Madison Hall. Health Informatics and Information Management is located in Wyly Tower. Agricultural Sciences and Forestry are located on the South Campus.

The Center for Children and Families, the only such center in Louisiana approved by the Board of Regents, is operated by the School of Human Ecology. The Center encourages collaborative research, instruction, and service that promote the well-being of children and families in north Louisiana. The Center sponsors the endowed Bruce Everist Lecture Series. The Center also includes the Early Childhood Education Center, a learning laboratory for 3- and 4-year-old children, where Family and Child Studies students observe, teach, and conduct research.

Reese Hall, Lomax Hall and the Forestry Laboratory Building provide classrooms, laboratories and office space for Agricultural Sciences and Forestry. In addition, Lomax Hall houses research and student laboratories, greenhouses, and a display greenhouse for large plant specimens and exotic plantings. The 850 acre South Campus also has a meats laboratory, which trains students in meat processing and marketing; and an equine center. The Louisiana Tech University Farm Salesroom, also located on South Campus, offers products that are produced and/or processed by the Department of Agricultural Sciences. The Tech Meats Laboratory sells retail cuts of beef, chicken, and pork through the Salesroom. Other products include seasonal fruits and vegetables, ornamental plants, Christmas poinsettias, and bedding plants. The Salesroom provides an integrated link in the marketing and sales of food and ornamental plant products.

The Louisiana Tech Equine Center provides facilities and animals for student instruction in all phases of horsemanship such as breeding, training, and nutrition. The Center also provides horsemanship classes and a therapeutic and handicapped horseback riding program.

Also located on the South Campus are numerous facilities which support the agriculture and forestry programs: a sawmill, a dry kiln, wood utilization laboratories, a wood working shop, a weather station, a farm machinery shop, barns for livestock, fields, forests, nurseries, research vegetable and flower gardens, a 50-acre arboretum, and ponds.

University-owned forestlands (800 acres) in north Louisiana and west Mississippi are used in the forestry education and research programs.

Scholarships

A number of scholarships are available in the College of Applied and Natural Sciences. Any student enrolled in the College is eligible to apply for general ANS scholarships. Other scholarships are available only to students in a certain department or major.

Applied and Natural Sciences Scholarships

- The Marvin T. Green Foundation Scholarship*
- The Ruston Hospital Endowment*

*Health-related careers

Agricultural Sciences Scholarships

- The Benjamin Forbes Leadership Scholarship
- The Block and Bridle Brittain Simms Memorial Scholarship
- The Block and Bridle Richard Hill Memorial Scholarship
- The Block and Bridle Sullivan Memorial Scholarship
- The Hal B. Barker Endowed Scholarship
- The Tommie and Susie Murphey Memorial Scholarship
- The C. G. Hobgood Memorial Scholarship
- The T. W. Ray Johnson Memorial Scholarships
- The John A. Wright Horticulture Scholarship
- The Todd McAfee Memorial Scholarship
- The Agricultural Endowment Scholarships
- The Bessie Mae Talbert Purdy Scholarships
- The James Furman & Lavara B. Love Endowed Scholarship
- The John Green Endowed Scholarship

Biological Sciences Scholarships

- The Radford B. Allen, Jr. Medical Technology Scholarship
- The George Roy Hayes, Jr. Endowed Scholarship

Forestry Scholarships

Application deadline is March 15. Contact School of Forestry, P.O. Box 10138, Ruston, LA 71272 for applications, or complete an on-line application posted on the School of Forestry web site.

- The E. R. (Andy) Andrulot Endowed Scholarship
- The Clyde and Ruby Anthony Endowed Scholarship
- The Lloyd P. Blackwell Scholarship
- The Wirt L. and Althea E. Bond Endowed Forestry Scholarship
- The Forestry Alumni Association Scholarship
- The Forestry Department Endowed Scholarship
- Forestry Presidential Awards
- The Louisiana Forestry Foundation Scholarships
- The Roy O. Martin Foundation Scholarship
- The McBride Endowed Scholarship
- The Mr. & Mrs. E. W. Merritt, Sr. Forestry Scholarship
- The Dan and Dave Metz Memorial Endowed Scholarship
- The Richard M. Sisk Trust Fund Award
- The Louis and Frances Pirkle Forestry Scholarship

- The Clara E. Wilson & Winifred S. Emmons Scholarship

Health Informatics and Information Management Scholarships
- The Eddie Cooksey Scholarship
- AHIMA Foundation Scholarship
- Lettie Pate Whitehead Scholarship

Human Ecology Scholarships
- The Home Economics Endowment Scholarships
- The Mary Wilks Chandler Endowed Scholarship
- The Clyde and Mildred Mobley and Kola Mobley Fouche Memorial Scholarship
- The F. C. and Gladys M. Haley Endowed Scholarship
- The Clothielde Tuten Clark Scholarship
- The Rhoda L. Chambless Scholarship
- The Willie Lou Durrett Scholarship
- The Laurie S. and Helen Mobley Scholarship
- The Lois M. Jackson Dietetics Advisory Board Scholarship
- The R. Terral Whetstone Scholarship
- The Eastman/Auto-Chlor Scholarship
- The Bette Heard Wallace Endowed Scholarship
- The Henry E. and Margaret A. Stamm Endowed Scholarship
- The Merle Burk Endowed Scholarship
- The Willie Fletcher Endowed Scholarship
- The Jeanne Mack Gilley Endowed Scholarship
- The E. Lee and Armede Wilks Young Endowed Scholarship
- The Rev. and Mrs. W. R. Gage Endowed Scholarship
- The Dr. Harvye Lewis Endowed Scholarship

Nursing Scholarships
- The Mary Marguerite Merritt Scholarship
- The Henry R. Mays, Jr. Scholarship
- The Virginia Pennington Scholarship
- The Richard Sorenson Scholarship
- The Gorman Memorial Endowed Scholarship

Student Organizations

A number of organizations provide students opportunities for professional and leadership development, service, and networking with other students, faculty, and professionals. Students who desire more information about these organizations may consult either their advisor or their academic unit head. College organizations include the following:

Agricultural Sciences
- Alpha Zeta
- Block and Bridle
- Equestrian Club
- Future Farmers of America
- Greenscape
- Pre-Vet Club

Biological Sciences
- Alpha Epsilon Delta
- Chi Lambda Beta

Environmental Science
- National Association of Environmental Professionals

Forestry
- Alpha Zeta
- Forestry Club
- GIS Club
- Xi Sigma Pi
- Student Chapter, Society of American Foresters
- Student Chapter, The Wildlife Society

Health Informatics and Information Management
- Sigma Rho Alpha
- Zeta Tau

Human Ecology
- Child Life Student Association
- Fashion Republic
- Kappa Omicron Nu (National Honorary)
- Louisiana Tech Association of Family and Consumer Sciences
- Louisiana Tech Student Council on Family Relations
- Louisiana Tech Student Dietetic Association
- Louisiana Tech Student Louisiana Early Childhood Association

Nursing
- Louisiana Tech University Student Nurses Association
- Zeta Tau

Bachelor Degree Programs

Department of Agricultural Sciences

Mission

The mission of the Department of Agricultural Sciences is to:
- provide basic knowledge and experiential learning opportunities that will prepare students for challenging careers in the food and fiber system and the agribusiness industry;
- provide students with a comprehensive education in plant and animal production, processing, marketing, and management; and
- enhance the economic viability and sustainability of agriculture in the region, state, and nation through research and outreach programs.

The Department of Agricultural Sciences offers Bachelor of Science (BS) degrees in Agricultural Business and Animal Science. A Concentration in Agriculture Education can be earned while fulfilling the requirements for teacher certification in the College of Education.

The Agricultural Business program offers the choice of two concentrations: Business, or Plant Science.

The Animal Science curriculum has three areas of concentration: Equine, Livestock Production, and Pre-Veterinary Medicine.

Agricultural Business

The Agricultural Business Curriculum provides a base of knowledge and training which supports career opportunities that require a fundamental knowledge of both business and agriculture. Two concentrations are offered to give the student maximum flexibility in pursuing educational and career goals: Business, and Plant Science.

The Business Concentration focuses on applied agricultural production, processing, financing, and marketing functions, as well as corporate business principles. The concentration features a built-in minor in Business Administration from the College of Business plus 14 hours of directed electives that allow the student to specialize in areas of agriculture, business, or other disciplines that are consistent with career goals.

The Plant Science Concentration includes a built-in minor in Plant Science and is designed for students who are interested in careers in such fields as Golf Course or Public Garden Maintenance, Landscape Contracting, Nursery and Greenhouse Operations, Ornamental Plant Production, Sports Turf Management, Irrigation Technology, Agricultural Extension, or Research Technology. Practical applications, combined with up-to-date course materials, provide students with excellent preparation for either professional or graduate school opportunities.

Agricultural Business Curriculum (BS)

Freshman Year
Animal Science 111 3
Agricultural Business 230.....3
Natural Sciences (GER)
Biological Sciences 130, 131.....4
English (GER).....6
Humanities (GER)

History....3
Mathematics (GER)....6
Plant Science 101....3
Social/Behavioral Sciences (GER)
Economics 201....3
31

Sophomore Year
Accounting 201....3
Agricultural Business 220....3
Fine Arts (GER)....3
Computer Literacy (GER)....3
Humanities (GER)
English 210, 211, or 212....3
Natural Sciences (GER)
Chemistry 100, 101, 102, 103, or 120, 121, 122....7
Social/Behavioral Sciences (GER)
Economics 202....3
Concentration Courses*....6
31

Junior Year
Agricultural Business 310....3
Agricultural Science 320....3
Humanities (GER)
English 303....3
Communications 110 or 377 or English 363....3
Plant Science 310, 311....4
Social/Behavioral Sciences (GER)....3
Concentration Courses*....12
31

Senior Year
Agricultural Business 402, 450, 460....9
Agricultural Science 411....1
Plant Science 450....3
Concentration Courses*....14
27

Total Semester Hours....120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

***Business Concentration.** Accounting 202, CIS 310, Finance 318, Management 310, Marketing 300, Business Law 255, plus 14 hours Directed Electives.

***Plant Science Concentration.** Agricultural Science 477, 478 or 479; Geographic Information Science 224, 250; Plant Science 211, 220, 284, 301, 312, 422, plus 6 hours Directed Electives.

Notes:

1. Directed Electives within Concentrations are to be chosen by student in consultation with advisor and must support a specific career path.
2. A maximum of 6 credit hours of AGSC 477, 478, or 479 (Cooperative Education Work Experience) can be applied toward this curriculum.
3. A combined maximum of 4 credit hours of AGBU 225/425 (Special Problems in Agricultural Business), ANSC 225/425 (Special Problems in Animal Science) and/or PLSC 225/400 (Special Problems in Plant Science) can be applied toward this curriculum.
4. All courses applied toward a minor must be completed with the grade of "**C**" or higher.

Requirements for a Minor in Plant Science

Eighteen hours, to include any combination of Plant Science courses, with a minimum of 9 hours in 300/400-level courses.

Agriculture Education

Agriculture Education prepares the student for teaching vocational agriculture in secondary schools. The College of Education manages this program in conjunction with the Department of Agricultural Sciences, with student advising occurring within Agricultural Sciences. Students in Agriculture Education must meet the general requirements for admission to teacher education in the College of Education's upper division. Service courses in technical agriculture provide the student training in the areas of plant science, animal science, forestry, soils, farm management, and farm mechanics. An active collegiate chapter of Future Farmers of America provides practical experiences and student leadership opportunities.

The program is listed under the College of Education, Department of Curriculum, Instruction, and Leadership. Inquiries about this curriculum may be made to either this department or to the College of Education.

Animal Science

Animal Science includes the fields of poultry, swine, dairy, beef, equine, and veterinary science.

Animal Science provides instruction and practical experience in judging, breeding, feeding, and managing livestock. Through course selection the student may prepare for livestock farming, management, business, or graduate study in animal science or veterinary medicine. Selection of directed electives permits special training for work with animal feed companies; milk, egg or poultry operations; food processing industries; managerial or marketing groups; supply and equipment cooperatives; agricultural extension services; public relations; and other organizations associated with animal production or management.

Opportunities are afforded students in Animal Science to obtain practical experiences in beef, sheep, swine, and equine operation and management through the University herds of registered livestock. A meat science laboratory for the study of meat cutting, preservation, storage and utilization, provides students opportunities for acquiring scientific and practical experiences in different aspects of processing meat. Breaking, training, and foaling are an integral part of Tech's popular equine program within the Agricultural Sciences Department. A nationally affiliated chapter of the Block and Bridle Club and the Pre-Vet Club provide social and educational activities for students pursuing animal science as a profession.

Animal Science Curriculum (BS)

Freshman Year
Animal Science 111....3
Fine Arts (GER)....3
English (GER)....6
Mathematics (GER)
Mathematics 100 or 101, 112....6
Natural Sciences (GER)
Biological Sciences 130, 131, 132, 133....8
Plant Science 101....3
Social/Behavioral Sciences (GER)....3
32

Sophomore Year
Agricultural Business 220....3
Animal Science 201, 202, 204 or 211....3
Biological Sciences 260....4
Biological Sciences 200 or 310....3
Humanities (GER)
History....3
English 210, 211, or 212....3
Communications 110 or 377....3
Natural Sciences (GER)
Chemistry 100, 101, 102, 103, 104....8
30

Junior Year
Agricultural Business
Any 300 or 400 level....3
Animal Science 301, 309, 312, 318....10
Humanities (GER)
English 303....3
Plant Science 211, 310....6

Concentration Courses* 5
27

Senior Year
Agricultural Science 411 1
Agricultural Science 320 3
Animal Science 315, 407, 410, or 411 3
Animal Science 401, 405, 409 8
Social/Behavioral Sciences (GER) 6
Concentration Courses* 10
31

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Concentration courses chosen by student in consultation with advisor from one of the following concentrations:

***Equine Science Concentration.** Animal Science 411 and concentration courses: Animal Science 220, 222, 340, and 440 plus 3 additional hours chosen with advisor.

***Livestock Production Concentration.** 9 hours of 300-level or higher Animal Science classes and 6 additional hours chosen with advisor.

***Pre-Veterinary Medicine Concentration.** Chemistry 250, 251, 252, and 351, Physics 209 and 210.

Notes:

1. A maximum of 6 credit hours of AGSC 477, 478, or 479 (Cooperative Education Work Experience) can be applied toward this curriculum.
2. A combined maximum of 4 credit hours of AGBU 225/425 (Special Problems in Agricultural Business), ANSC 225/425 (Special Problems in Animal Science) and/or PLSC 225/400 (Special Problems in Plant Science) can be applied toward this curriculum.
3. The student may not use AGBU 425 to satisfy the AGBU 300- or 400-level course requirement.

Requirements for a Minor in Animal Science

Twenty-one hours to include Animal Science 111 plus any combination of other animal science courses, with a minimum of 9 hours in 300/400-level courses.

Applications to Veterinary Medicine Programs

Louisiana Tech University Animal Science students who have completed the admission requirements for entrance into a professional veterinary medical school may apply prior to completion of the undergraduate degree. Such a student may receive a B.S. degree in Animal Science from Louisiana Tech University, after successfully completing one year of veterinary school, if they meet the following criteria: (a) completion of at least 90 credit hours; (2) completion of all General Education Requirements (GER); and (3) completion of Animal Science 111, plus 12 additional hours of 300-400 level Animal Science courses. The student is responsible for arranging transfer of credit from the veterinary medical school to Louisiana Tech University, and the student must follow procedures for application for graduation at Louisiana Tech University.

The Pre-Veterinary Medicine concentration at Louisiana Tech University is based on the requirements for application to the Louisiana State University (LSU) Veterinary Medical School in Baton Rouge. Application for admission to the LSU Veterinary Medical School is made in October for admission in the fall of the following year. Residence status is determined by LSU, and residence status at Louisiana Tech University has no bearing on such determination. Requirements for admission to professional veterinary programs in other states may vary.

School of Biological Sciences

The curricula and courses offered by the School of Biological Sciences are designed to prepare students to meet a broad range of career goals. Two undergraduate degrees are offered: Bachelor of Science in Biology and Bachelor of Science in Medical Technology. Each degree program includes general education courses; a group of required courses in biology, chemistry, mathematics, and physics; and electives, selected with approval of the advisor, appropriate to a concentration. The interdisciplinary degree in Environmental Science is also administered through the School of Biological Sciences.

Mission

The mission of the School of Biological Sciences is to promote student and faculty professional growth and development through integration of teaching and research. The School contributes to the biological literacy of all students, advances biological knowledge, and is a resource for the state, region, and nation.

Objectives and Career Opportunities

Degree programs in the School of Biological Sciences provide a solid foundation in both the biological sciences and chemistry and are designed to prepare students for a broad range of careers. The BS degree in Biology and the BS degree in Medical Technology allow students to design a medical/science-oriented curriculum that meets their career goals. The BS degree in Medical Technology prepares students for jobs in clinical laboratory sciences. The BS in Biology prepares students for postgraduate study or for jobs as research assistants, managers or staff scientists in a wide range of academic and industrial laboratories, state and federal agencies, and private industry.

Degree Programs and Concentrations

Three undergraduate degrees are offered: BS in Biology, BS in Environmental Science (an interdisciplinary program housed in the School of Biological Sciences), and BS in Medical Technology. The BS in Biology includes two concentrations, one in Biological Sciences and one in Applied Biology.

Program Information

Students completing a degree in Biology choose a concentration based upon their career goals. Students are urged to consult with advisors in selecting the concentration that is best suited to their postgraduate career. The course work in the biological sciences concentration satisfies the course requirements for entrance to most graduate, medical, and dental schools, as well as other medical fields if certain electives are taken.

Occasionally, students are accepted to and enroll in medical, dental, or other professional school before completion of the bachelor's degree. Such a student may make application to receive a BS degree in Biology from Louisiana Tech University after successfully completing one year of professional school provided the following criteria are met: (1) completion of all General Education Requirements, and (2) completion of 90 semester credit hours to include Biological Sciences 130-133, 310, 313, and 320; Chemistry 100-104 or 107 and 108; 250-254; 351 and 352; Statistics elective.

To graduate with a BS degree in Biology, the student must earn a grade of "**C**" or better in all Biological Sciences courses counted toward graduation requirements.

Biology Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 130, 131, 132, 133, 260 12
Chemistry 100, 101, 102, 103, 104 8
English (GER) 6
Mathematics (GER)
Mathematics 100 or 101, and 112 6
32

Sophomore Year
Humanities (GER)
English 210, 211, or 212 3
History 3
Physics 209, 210, 261, 262 8

Concentration Courses* 16
30

Junior Year
Biological Sciences 310, 315, 320 9
Humanities (GER)
English 303 3
Communications 110, 377, or English 363 3
Social Science (GER) 3
Statistics 200 or Agricultural Science 320 3
Concentration Courses * 9
30

Senior Year
Fine Arts (GER) 3
Biological Sciences 313, 480 4
Social Science (GER) 6
Concentration Courses * 13
Electives 2
28

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Concentration Courses chosen by student in consultation with advisor from one of the following concentrations:

***Biological Sciences Concentration.** Sophomore Year: Biological Sciences ** (8); Chemistry 250, 251, 252, 253, 254 (8). Junior Year: Biological Sciences ** (1); Chemistry 351, 352, 353, 354 (8) Senior Year: Biological Sciences ** (13).

** At least 12 hours of BISC courses must be at the 300/400 level.

***Applied Biology Concentration.** NOTE: Does not meet the minimum requirements for admission to medical or dental school. Sophomore Year: Biological Sciences 225, 227 (6); Biological Sciences** (3); Science Electives (7). Junior Year: Biological Sciences ** (3); Science Electives (6). Senior Year: Biological Sciences ** (7); Science Electives (6).

** At least 10 hours of BISC courses must be at the 300/400 level.

Requirements for a Minor in Biology

Twenty-one hours of Biological Sciences (BISC) courses which must include Biological Sciences 130, 131, 132, 133, 260, 310, 313, and 320.

Medical Technology

Program Information

Medical technologists (medical laboratory scientists) are clinical specialists who design, perform, evaluate, and supervise biological, chemical, and other clinically related tests. Job opportunities for these specialists exist in hospitals, clinics, research facilities, government agencies, educational institutions, and industries.

Graduates of the program in Medical Technology are required to complete 120 semester hours of specified course work, which includes one calendar year (32 semester hours) of professional course work in an accredited clinical training program affiliated with Louisiana Tech University. These programs are located in metropolitan areas throughout the region and provide "hands on" training. Affiliated clinical training programs are located at Lake Charles Memorial Medical Center, Lake Charles, LA; Rapides General Hospital, Alexandria, LA; Veterans Administration Medical Center, Shreveport, LA; Baptist Health System, Little Rock, AR; and Scott and White Hospital, Temple, TX. The affiliated clinical training programs are all accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

During the third quarter of the sophomore year, students are counseled as to their progress toward meeting the minimum academic requirements for admission to the professional education component. This evaluation is based on the student's progress in completing all required pre-professional courses, a minimum cumulative grade point average of 2.7, no grade less than "**C**" in BISC or CLAB courses, and the recommendation of the program faculty.

Students who meet the criteria listed above are allowed to complete the formal application process to professional training sites. Applications should be completed by the appropriate published deadline during the junior year. Applicants are admitted to the professional programs on a competitive basis by using both academic and non-academic criteria. Admission decisions are made by the Admissions Committee at each site. Applicants are informed of the decision of the Admissions Committee by the third quarter of the junior year. Students who are not selected for admission are counseled as to their deficiencies and of appropriate remedial action or alternative career opportunities.

Students who are accepted into the professional program enroll in courses chosen by the student and the Program Coordinator. On-campus registration for these students is coordinated with campus faculty with appropriate fees paid by the student at the time of registration. The student must comply with all University policies and the policies of the clinical affiliate. These policies are stated in the bulletin or the program brochure of each clinical site. Students must maintain a grade of "**C**" or better in all clinical courses. Students who fail to follow these policies are dropped from the program. On-site living expenses are the responsibility of the student. University financial aid (loans, grants, scholarships) is available to students during clinical training.

To qualify for graduation, a grade of "**C**" or better must be obtained in all BISC and CLAB courses. After completion of professional education, the student is awarded the BS degree and is eligible for professional certification, which is achieved by passing a nationally recognized registry examination.

Medical Technology Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 130, 131, 132, 133, 224, 226 12
Chemistry 100, 101, 103 5
English (GER) 6
Mathematics (GER)
Mathematics 100 or 101 3
Social/Behavioral Sciences (GER)
Psychology 102 or Sociology 201 3
29

Sophomore Year
Fine Arts (GER) 3
Biological Sciences 246, 260, 315, and 344 14
Chemistry 102, 104, 121* 6
Humanities (GER)
English 210, 211, or 212 3
History 3
English 303 3
32

Junior Year
Biological Sciences 310, 341, 343, 445 12
Health Information Management 417 3
Humanities (GER)
Communications 110 or 377 3
Mathematics (GER)
Statistics 200 3
Social/Behavioral Sciences (GER) 6
27

Senior Year
Directed Electives** 32
32

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
* The student may elect to take CHEM 250, 251, 252 in lieu of CHEM 121.
** The student and Program Coordinator will choose courses from

Clinical Laboratory Science 460-489.

Pre-Professional Course Work

In addition to the two degrees offered by the School of Biological Sciences, Louisiana Tech University can prepare students for entry to professional programs offered at other institutions.

NOTE: Please be aware that the pre-professional course work necessary for admission to these programs is **specified by the admitting institution**, NOT Louisiana Tech. Therefore, it is the responsibility of each student to obtain a catalog, or printout of required course work from the web site of the school he/she plans to attend and determine which courses are required prior to entering that institution. The student can then "customize" course work in consultation with an advisor in the School of Biological Sciences to fulfill the requirements of a particular institution.

Examples of such programs are Pre-Cardiopulmonary Science; Pre-Occupational Therapy; Pre-Optometry; Pre-Pharmacy; Pre-Physician Assistant; Pre-Physical Therapy; Pre-Radiologic Technology.

Admission to professional phases of these programs is on a competitive basis. Furthermore, it should be noted that although some programs will consider students after 2 years of course work at Louisiana Tech, in reality many students are admitted only after completion of a baccalaureate degree. If there is any question about this, it is the student's responsibility to contact the admitting professional program for clarification.

REMEMBER: It is the student's responsibility to determine what is required for admission to the particular institution in which he/she is interested.

Environmental Science-Interdisciplinary

Program Information

The Environmental Science program consists of a multi-disciplinary curriculum emphasizing pure and applied sciences, and the application of critical thinking to environmental problems. Participating academic units include Agricultural Sciences, Biological Sciences, and Forestry. The curriculum incorporates directed electives to allow students to work toward a minor in an area of particular career interest. Numerous minors are available at Louisiana Tech University; specific requirements for minors are identified in the departmental sections of this Catalog.

A junior or senior internship or cooperative education experience is a requirement of the curriculum because it contributes to the preparation of students for a career in environmental science; thus graduates are ready for a wide range of employment opportunities. Potential employers are regulatory agencies, industrial firms, commercial laboratories, consulting firms, and environmental organizations. Also, graduates may pursue enrollment in professional or graduate schools.

Environmental Science Curriculum (BS)

Freshman Year
English (GER) 6
Environmental Science 211 3
Mathematics (GER)
  Mathematics 100 or 101, and 112 6
Natural Sciences (GER)
  Biological Sciences 130, 131, 132, 133 8
  Chemistry 100, 101, 102, 103, 104 8
31

Sophomore Year
Biological Sciences 216, 217 4
Chemistry 121, 205 7
Environmental Science 212 3
Geology 111, 121 4
Humanities (GER)
  English 210, 211, or 212 3
Mathematics 220 3
Social/Behavioral Sciences (GER)
  Geography 3
Directed Electives* 3
30

Junior Year
Biological Sciences 260 4
Environmental Sciences 310, 311, 313 7
Environmental Sciences 478/ (recommended) or
Special Problems 3
Geographic Information Science 250 3
Geology 422 3
Humanities (GER)
  English 303 3
  English 363 or Communications 110 or 377 3
Statistics 3
29

Senior Year
Environmental Science 450, 458 6
Fine Arts (GER) 3
Humanities (GER)
  History (IER) 3
Social/Behavioral Sciences (GER)
  Political Science 3
  One other Social Sciences discipline 3
Directed Electives* 12
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Students are encouraged to obtain a minor in an area of their choice; if students choose not to seek a minor, directed electives are selected from areas including Animal Science, Biology, Chemical Engineering, Chemistry, Environmental Science, Forestry, Geographic Information Science, Geography, Geology, Physics, and Plant Science.

Students are required to complete individual professional courses (Biology, Chemistry, Environmental Science, Geographic Information Science, Geology, Statistics, and Directed Electives) with a minimum grade of "**C**".

Requirements for a Minor in Environmental Science

Twenty-one hours of course work to include Geology 111, Environmental Science 211, 310, 313, 458, and 6 hours of Biological Sciences, Chemistry, Environmental Science, Forestry, Geology, or Plant Science at the 300-level or above.

School of Forestry

Vision

The School of Forestry is dedicated to developing and disseminating knowledge related to the conservation and management of renewable natural resources and the sustainable use of their products and services through teaching, research, and service activities.

Mission

Committed to the integration of teaching, research, and service, the School of Forestry will provide:

1. Exceptional educational opportunities with hands-on learning, real-world experience, and state-of-the-art science;
2. Investigation into problems, issues and understanding of state, regional, national and global importance; and
3. Transfer, dissemination, and continuing education of solutions of state, regional, national and global issues related to renewable natural resources.

Degree Programs

The School of Forestry offers two degree programs: the Bachelor of Science in Forestry (BSF), with concentrations in Forest Management and Wildlife Habitat Management, and a Bachelor of Science in

Geographic Information Science (BS) with a concentration in Natural Resources. The Forest Management concentration is designed for students who desire scientific knowledge of conservation of forests, such as timber inventory, site productivity, resource protection, and many other activities carried out in the management of forest resources. The Wildlife Habitat Management concentration is designed for students who desire scientific knowledge about the management of wildlife and emphasizes the life history, habitat relationships, and habitat management of wildlife species and communities. The Geographic Information Science (GISc) curriculum is designed for students interested in understanding, analyzing, and applying the spatial relationship among human and physical features (e.g., social and economic impact of natural disasters).

Jobs for graduates of the two curricula are found in all sectors of the economy including business, communication, defense, education, engineering, Federal, state, and local government, health and human services, natural resources, transportation, and many others.

Students are encouraged to complete at least one internship (on-the-job experience) during their course of study. Students are required to maintain a minimum grade of "**C**" on all individual professional courses and a minimum grade point average of 2.0 on all courses taken. Professional courses for each of the degree programs are as follows: Forestry – Forestry, Wildlife Habitat Management, Biology, Geographic Information Science prefixes; Geographic Information Science – Geographic Information Science prefixes and any course listed as a Concentration Elective or Other Program Requirement.

The educational program in Forestry leading to the professional degree of BSF is accredited by the Society of American Foresters (SAF). The Council for Higher Education Accreditation (CHEA) recognizes SAF as the specialized accrediting body for forestry and natural resources education in the United States and Canada.

Field Session

Successful completion of the Forestry Summer Field Session during the junior year is a prerequisite for senior standing for Forestry majors, but not for Geographic Information Science majors. Students who have completed all prerequisites, including all 100 level courses, FOR 201, 300, 301 (or BISC/ENSC 313), 302, 306, GISC 250, MATH 212, and have at least an overall "**C**" average are eligible to enroll. Field Session students are also required to meet the conditions as outlined in the *Forestry Summer Field Session Academic and Operating Policies* document which is available from the School of Forestry upon request.

Field Trips

Throughout the Forestry program, field trips are made to forest production areas, wood-using plants, and wildlife management areas. These enable students to observe forestry, wildlife management, research, and wood-using activities of private companies and government agencies. Many of the important forest types and management activities, as well as a wide variety of wood-using industries, are located near campus.

Expenses

Field trips cannot always be arranged within the scheduled laboratory hours. In some cases, students must leave the campus earlier and return later than the published class schedule. The payment for meals and lodging when overnight trips are necessary is the responsibility of the individual student. This includes the field session. In addition to regular expenses, a special fee is charged each student who attends the field sessions.

Each student registering for any Forestry, Geographic Information Science, or Biological Sciences course involving field laboratory work should have, for self-protection, an accident insurance policy. Policies are available during registration to all students for a reasonable cost.

A number of student assistants are employed by the School each year. This enables the students to work part-time to defray expenses while attending school.

Transfer Credit

Students may complete 62 semester hours of the Forestry or Geographic Information Science major at regionally accredited institutions. However, transfer credit will only be accepted for courses completed with a "**C**" or better grade and must be approved during the student's first quarter at Tech.

The 300- and 400-level Forestry professional courses must be completed at Louisiana Tech University. Students who are considering transfer to the School of Forestry should contact the Director's Office, School of Forestry, prior to enrollment at other institutions.

Forestry

Program Information

Forestry is an incorporative profession that draws from the biological, physical, social and managerial sciences. The degree offers a strong background in the understanding of the complexities of forest resources and the interactions between biological, economic, and social demands placed on them. The 130 semester credit hour Forestry program contains a professional core of 67 credit hours of forestry and related natural resource courses, including 8 credit hours of Geographic Information Science. The concentrations consist of 16 credit hours of either forest management or wildlife habitat management related natural resources courses.

The Bachelor of Science in Forestry is a professional program that emphasizes the biological and managerial skills needed to ensure the sustainability of the many renewable forest and wildlife resources on which society depends. Successful completion of the curriculum will provide competency in the areas of basic science; forest biology, ecosystem processes, structure and function; timber inventory and growth; soil formation, properties and classification; site productivity; silvicultural principles of stand structure and composition; regeneration and intermediate operations; resource protection; decision making and problem solving; communications and many other activities carried out in the production and management of forest and wildlife resources.

Graduates of the Forestry program will find employment as professional foresters or wildlife managers in private forest industries and organizations; forestry and environmental consulting firms; public agencies, including the U.S. Forest Service, U.S. Fish & Wildlife Service, Bureau of Land Management, Natural Resources Conservation Service; state and local government natural resource agencies, and many others. Graduates are also qualified for employment as research technicians in government, university and private laboratories, or may continue their education through specialized degrees at universities across the country.

Forestry Curriculum (BSF)

Freshman Year
English (GER) 6
Fine Arts (GER) 3
Forestry 111, 201, 230 8
Mathematics (GER)
  Mathematics 100 or 101, and MATH Elective** 6
Natural Sciences (GER)
  Biological Sciences 130, 131 4
Social/Behavioral Sciences (GER) 3
30

Sophomore Year
Forestry 202, 231, 232, 233 5
Geographic Information Science 250, 260 6
Humanities (GER)
  English 210, 211, or 212 3
  History 3
Natural Sciences (GER)
  Chemistry 120, 121, 122 or
  Chemistry 100, 101, 102, 103 7
  Social/Behavioral Science (GER) 3
Statistics Elective** 3

30

Junior Year
Forestry 300, 301, 302, 306, 312 14
Humanities (GER)
English 303 3
Social/Behavioral Sciences (GER)
Economics 201, 202, or 215 3
Wildlife 314 3
Geographic Information Science 224*** 2
Forestry 310, 315, 320*** 7
Concentration Courses* 7
39

Senior Year
Forestry 401, 406, 417, 425, 428, 456, 480 19
Humanities (GER)
Communications 110 or 377, or English 363 3
Concentration Courses* 9
31

Total Semester Hours 130
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Concentration courses chosen by student in consultation with advisor from one of the following concentrations:

***Forest Management Concentration.**

Forestry 313, 318, 319, 402, 404, and 427 or 460.

***Wildlife Habitat Management Concentration.**

Biological Sciences 132, 133, 200 or 310, 401 or Animal Science 309, Wildlife 347, 445.
**Mathematics Elective chosen by student in consultation with advisor from MATH 112 or higher.
**Statistics Elective: AGSC 320, QA 233, PSYC 300, or STAT 200, or equivalent.
***10 credit hours are taken during a required Summer Field Session between the Junior and Senior years.

Requirements for a Minor in Forestry

A minimum of 22 hours to include Forestry or Wildlife 230, 231, 232, 233; Forestry 301 or Biological Sciences 313; Forestry 202, 302, 306, 312 or 313, and Forestry 406.

Requirements for a Minor in Wildlife Habitat Management

Twenty-one hours to include Biological Sciences 313 or Wildlife or Forestry 301; Wildlife or Forestry 230, 231, 232, and 233; Wildlife 314, 347 and six hours of Directed Electives at the 300-level or above in Animal Science, Biological Sciences, Environmental Science, Forestry or Wildlife.

Geographic Information Science - Interdisciplinary

Program Information

The Geographic Information Science (GISc) program in the School of Forestry in the College of Applied and Natural Sciences consists of a 120 semester credit hour concentration in Natural Resources that incorporates 33 hours of concentration electives that allow students to specialize in natural resources. Students are prepared for rewarding and high-paying careers in the field of spatial data technologies that more specifically engage environmental issues and issues that pertain to the natural sciences. Careful selection of concentration electives provides the opportunity to earn a minor in forestry, wildlife habitat management, environmental science, or other fields. Specific requirements for minors are identified in the departmental sections of this Catalog.

The GISc curriculum is designed for students interested in understanding, analyzing, and applying the spatial relationship among human and physical features (e.g., social and economic impact of natural disasters). Students of GISc learn how to use computer software programs that identify the interactions that transpire between humans and the physical environment based on location. They also learn how to analyze those interactions, and to use that information to assist with public and private sector management, administration and planning.

Career opportunities for graduates with GISc training specifically mention a degree in GISc as a favored condition of employment. There is an enormous and growing need for graduates with GISc training. Ample job opportunities exist both in Louisiana and across the country and such opportunities are growing and diversifying as GISc technologies prove their value in even more areas. Excellent opportunities exist for GIS analysts, cartographers, database and system administrators, photogrammetrists, image analysts, GIS coordinators, and programmers. Employment can be found in U.S. Government agencies such as the U.S. Geological Survey (USGS), U.S. Forest Service (USFS), Environmental Protection Agency (EPA), and National Aeronautics and Space Administration (NASA), in city and state government for planning, environment, resources, and transportation, and in the private sector for a diverse set of disciplines including agriculture, archeology, architecture, business, communications, computer science, defense, ecology, economics, education, engineering, forestry, health and human services, natural resources, and many others.

Geographic Information Science Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 3
Social/Behavioral Sciences (GER)
Economics 3
One other Social Sciences discipline 3
English (GER) 6
Fine Arts (GER) 3
Mathematics (GER) 6
Concentration Courses* 5
29

Sophomore Year
Natural Sciences (GER) 6
Humanities (GER)
English 210, 211, or 212 3
History 3
Geographic Information Science 250, 260, 360 8
Concentration Courses* 9
Social/Behavioral Sciences (GER) 3
32

Junior Year
Humanities (GER)
Communications 110 or 377 3
English 3
Geographic Information Science 224, 341, 350, 371 11
Concentration Courses* 15
32

Senior Year
Geographic Information Science 460, 461, 462, 463, 464 16
Concentration Courses* 11
27

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Concentration Courses chosen by student, in consultation with advisor, from one of the following concentrations:

***Natural Resources Concentration**. GER and other non-GISC requirements for this concentration include the following: Natural Sciences (9 hours); Mathematics 100 or 101, and 112 or higher. Statistics (3 hours)-Agricultural Science 320, Psychology 300, Quantitative Analysis 233, or Statistics 200; English (12 hours)-English 101, 102, 210 or 211 or 212, and 303; Social Sciences (9

hours)-Economics 201 or 202 or 215, and 6 hours of Social Science electives; History 102 or 201 or 202; Communications (3 hours)-Communications 110 or 377 or English 363; Fine Arts elective (3 hours); Computer literacy elective; Biological Sciences 212; Directed electives (31 hours) chosen in consultation with advisor. An International Education Requirement (IER) must be selected from Humanities GER (History 102) or Social Sciences GER (Geography 205 or 210).

Requirements for a Minor in Geographic Information Science

A minimum of 19 hours to include Geographic Information Science 224, 250, 260, 350; Geography/Geographic Information Science 341, 371; one quantitative methods course chosen from Agricultural Sciences 320, Geographic Information Science 360, Quantitative Analysis 233, or Statistics 200, 402, or 405.

Department of Health Informatics & Information Management

Health Informatics and Information Management professionals collect, integrate, and analyze primary and secondary health care data, disseminate information, and manage information resources related to the research, planning, provision, and evaluation of health care services.

High school students planning to enter a Health Informatics and Information Management program should take the general college preparatory courses and be computer literate.

Applicants for readmission and transfer students must meet program criteria at the time of admission to the program. If application for readmission occurs more than three quarters since the student was enrolled in a Health Informatics and Information Management (HIIM) course, a committee of Health Informatics and Information Management faculty will determine placement in the curriculum and any remedial course work necessary. Transfer credit from another accredited Health Informatics and Information Management program in a regionally accredited college will be evaluated to determine similarity of course content. Courses with the same content in which the student earned at least a "**C**" can be transferred. Credit from a non-accredited program will be granted provided the course is the same in content, the student earned at least a "**C**" in the course, and mastery of course material is validated by examination.

Students are required to adhere to stated prerequisite courses. A request for a waiver of a stated prerequisite course must be submitted to the student's advisor who will make a recommendation to a committee of HIIM faculty. The committee will consider overall GPA, HIIM GPA, and prior work experience in their decision.

The Health Informatics and Information Management program includes a professional practice component in which the student performs Health Informatics and Information Management procedures in hospitals and other health care facilities. To be eligible to register for the professional practice, the student must earn a minimum grade of "**C**" in prerequisite courses, achieve a minimum GPA of 2.25 in the curriculum, and have the approval of the committee of HIIM faculty. In addition to regular University fees, students beginning directed practice must provide name pins and their own transportation, and must submit to criminal background checks and drug screening. Proof of immunizations and current PPD testing are also required. The quarter preceding graduation is spent at off-campus affiliated sites where the student will gain experience in a variety of health care organizations. These experiences may be clustered in the North Louisiana area. There are additional sites in other cities in Louisiana, Texas, Mississippi, Arkansas, and other states for students who are able to spend a period of time in another area. Each student's professional practice experience is individually planned with the student to fulfill the educational requirements within the student's financial and travel limitations. These professional practice experiences will be scheduled for students who have completed all course work on-campus

1. have no grades in required courses in the curriculum less than a "**C**",
2. have a curriculum GPA of no less than 2.25,
3. and have an overall GPA of no less than 2.0.

A student's professional practice experience will be terminated for inappropriate professional behavior and lack of adherence to ethical standards. The student who terminates a professional practice experience without permission from the HIIM professional practice coordinator and the professional practice site will not be scheduled for further professional practice experiences.

If a student wishes to enroll in a professional practice course after a lapse of more than three quarters since completion of the prerequisite courses, a committee of HIIM faculty will determine whether remedial course work is necessary before placing the student in professional practice. This is the only course that is not offered online. It must be completed at a professional practice site.

Louisiana Tech offers Health Information Technology graduates the opportunity to progress towards the four year degree. This is done by participating in internet and/or on-campus classes. Students are required to have an associate degree in HIT and possess RHIT credentials obtained within the last three years. Progression students will be evaluated on an individual basis to determine the HIM courses for which they will receive credit.. A minimum of 2.0 grade point average and 121 semester hours are required to receive the BS in Health Informatics and Information Management. Students must complete all GER requirements as well as HIM courses.

Students must earn a "**C**" in all required courses before being eligible for graduation from the program.

Students seeking information concerning admission to the Health Informatics and Information Management programs may contact the Health Informatics and Information Management Department, P.O. Box 3171, Louisiana Tech University, Ruston, LA 71272.

Health Informatics & Information Management

The baccalaureate degree curriculum emphasizes the development of skills for the management of health-related information and the systems used to collect, store, retrieve, disseminate, and communicate information for the support of enterprise operations and clinical and business decision making in health care or related organizations.

The Health Informatics and Information Management (HIIM) program requires 12 quarters of study on-campus plus 1 quarter off-campus at professional practice sites.

The Health Informatics and Information Management (HIIM) program received the Louisiana State Board of Regents' Commendation of Excellence, the highest recognition awarded to an academic program by this group.

The program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education. Graduates of the program are eligible to apply to write the registration examination of the American Health Information Management Association. Graduates who pass this examination may use the credential, RHIA, Registered Health Information Administrator. This program leads to the Bachelor of Science Degree. This program is available online.

Health Informatics & Information Management Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 225, 227 6
English (GER)
English 101, 102 6
Health Information Management 103, 110, 120, 128 10
Mathematics (GER)
Mathematics 100 or 101 3
Mathematics 125 or Statistics 200 3
28

Sophomore Year
Health Information Management 207, 217, 229, 232, 250, 251, 252, 280, 282, 333 28
Natural Sciences (GER)

Chemistry 120 3
Social/Behavioral Sciences (GER)
Psychology 102 3
34

Junior Year
Humanities (GER)
English 210, 211, or 212 3
Communications 110 or 377 3
English 303 3
Health Information Management 312, 330, 350 10
Management 310 3
Social/Behavioral Sciences (GER)
Sociology 201 3
An additional Social Sciences course 3
28

Senior Year
Fine Arts (GER) 3
Clinical Laboratory Science 450 3
Health Information Management 411, 417, 430, 435, 477/478/479 18
Humanities (GER)
History 102 (IER) 3
Management 470 3
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

Requirements for a Minor in Health Informatics and Information Management

Nineteen hours to include Health Information Management 102, 103, 240, 312, 318, and 440.

School of Human Ecology

Mission

The mission of the School of Human Ecology is to explore and enhance the human experience through the context of families, nutrition and merchandising. With a focus on promoting diversity and sustainability in a globalizing and ever-changing world, we endeavor to create competent and engaged professionals, contribute to scholarly research, and partner with and provide services for the community.

Programs

The School of Human Ecology offers three undergraduate degree programs (Family and Child Studies, BS; Fashion Merchandising and Retail Studies, BS; Nutrition and Dietetics, BS), a post-baccalaureate dietetic internship, one graduate certification program (Dietetics) and one graduate degree program (Nutrition and Dietetics, MS). In addition, the School of Human Ecology collaborates with the College of Education to offer the Early/Elementary Education - Grades PK-3 undergraduate degree program and the Family and Consumer Sciences concentration of the Secondary Education BS program; and with the Department of Psychology and Behavioral Sciences to offer a graduate certificate program in the Dynamics of Domestic and Family Violence.

Undergraduate programs in the School of Human Ecology are accredited by the Council for Accreditation of the American Association of Family and Consumer Sciences. The Nutrition and Dietetics undergraduate program (DP) and the post-baccalaureate dietetic internship (DI) are accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. The Early Childhood Education Center is accredited by the National Academy of Early Childhood Programs, and is a Louisiana Quality Rating System 5-star center. In addition, the Family Science concentration coursework is approved by the National Council on Family Relations for obtaining provisional certification as a Family Life Educator.

Family and Child Studies

Career Opportunities

Students completing the BS degree in Family and Child Studies will choose one or more of three concentrations: Applied Child Development, Child Life, or Family Science. All concentrations provide students with a broad background in child development and guidance, family dynamics, coping strategies, and interpersonal skills. Each concentration includes theory-based courses, application-based courses, and experiential education courses.

The Applied Child Development concentration prepares students to work with children from birth through adolescence in a variety of settings, including youth services/activities, child/family advocacy agencies, education centers, social service agencies, Head Start programs, non-profit and/or faith-based organizations, child protective services, child care facilities, residential facilities, child development and/or parent education training facilities, and community organizations. Graduates are prepared to directly enter into their professional careers and they are also prepared to apply for graduate school in areas such as: social work, education (curriculum and instruction, administration/education leadership), counseling (community, school, marriage, and family therapy), human/child development, or psychology (school, social, child). The Applied Child Development concentration is not a teacher certification program.

The Child Life concentration prepares students to become child life specialists. After completing the BS degree in Family and Child Studies, graduates must complete an internship and pass a national certification examination to become Certified Child Life Specialists (CCLS). Child life specialists work primarily in the hospital setting, although some graduates have obtained jobs working with children in social service and community agencies, and in bereavement programs.

The Family Science concentration prepares students to work with families in a variety of settings, including family service and youth agencies, aging facilities, family life education, cooperative extension, employee assistance programs, and law or public policy. Upon completion of the undergraduate degree and course requirements, graduates are eligible for certification as a Certified Family Life Educator through the National Council on Family Relations. Many students completing this concentration pursue graduate studies in family studies, child development, counseling, psychology, social work, marriage and family therapy, gerontology, early intervention, or seminary.

Program Information

Students in the Family and Child Studies program are eligible to apply for upper division after they have completed at least 30 semester hours, including 6 hours of English composition, 6 hours of mathematics, and 6 hours of Family and Child Studies courses; have at least a 2.2 GPA; and have earned a grade of "**C**" or better in English 101 and 102, 3 hours of mathematics, and all Family and Child Studies courses taken at Louisiana Tech University. Students are required to be admitted to upper division before enrolling in 300 and 400 level Family and Child Studies courses. A grade of "**C**" or better in all courses within the School of Human Ecology is required in order to meet graduation requirements.

Family and Child Studies Curriculum (BS)

Freshman Year
English (GER) 6
Family and Child Studies 110, 201 and 210 7
Humanities (GER)
History 3
Communications 110 or 377 3
Mathematics (GER)
Mathematics 100 or 101 3
Mathematics 112, 125 or Statistics 200 3
Fine Arts (GER) 3

Natural Sciences (GER)
Biological Sciences 3
31

Sophomore Year
Family and Child Studies 255 3
Humanities (GER)
English 210, 211, or 212 3
Human Ecology 257 3
Natural Science (GER)
Physical Science 3
Physical or Biological Science 3
Social/Behavioral Sciences (GER)
Psychology 3
Sociology 3
Directed Electives* 9
30

Junior Year
Family and Child Studies 320 3
Human Ecology 357 2
Human Ecology Practica 3
Restricted Electives** 6
Directed Electives* 15
29

Senior Year
Elective 3
English 303 or 332 3
Family and Child Studies Elective 3
Family and Child Studies 395 3
Human Ecology Elective 3
Human Ecology Practica 3
Social Science (GER) 3
Directed Electives* 9
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
* Directed Electives are those chosen by student, in consultation with advisor, from one of the following concentrations.

***Applied Child Development Concentration**. Sophomore Year: Family and Child Studies 200, 276, Family and Child Studies Elective (3). Junior Year: Family and Child Studies 277, 301, 331, 341, Human Ecology Elective (3). Senior Year: Family and Child Studies 401, 432, 451.

***Child Life Concentration.** Sophomore Year: Family and Child Studies 225 (1), 280, 325 (2); Health Information Management 103. Junior Year: Family and Child Studies 301, 331, 341; Family and Child Studies 355 or Counseling 400; Biological Sciences 224. Senior Year: Family and Child Studies 380, 432, 451.

***Family Science Concentration.** Sophomore Year: Family and Child Studies 100, 200; Family and Child Studies Elective (3). Junior Year: Family and Child Studies 301 or 331 or 341; Family and Child Studies 355 or Counseling 400; Family and Child Studies 471; Family and Child Studies 475; Human Ecology Elective (3). Senior Year: Family and Child Studies 420, 444, 447.

** Restricted Electives are approved 300 and 400 level courses selected in consultation with advisor.

Requirements for a Minor in Family and Child Studies

A total of 21 hours in Family and Child Studies courses will complete a Minor. Required courses include Family and Child Studies 100 and 201. An additional 15 hours will be selected, including at least 9 hours at the 300-level or above.

Requirements for an Interdisciplinary Minor in Gerontology

The minor in Gerontology is an interdisciplinary program requiring 21 hours.

Core courses (15 hours): Family and Child Studies 201 or Psychology 308; Kinesiology 406; Sociology 435; Family and Child Studies 447; 3-hour practica or research-based independent study in Human Ecology, Kinesiology, Psychology, or Sociology.

Electives (6 hours): Electives are to be selected from those listed below and approved by the advisor. Elective courses include: Food and Nutrition 220; Family and Child Studies 420, 435; Sociology 313, 436; Kinesiology 292, 416; Psychology 469, 474, 475.

Fashion Merchandising and Retail Studies

Career Opportunities

Fashion Merchandising and Retail Studies prepares students with the knowledge and skills to work in both the manufacturing and retail areas of business. The program is designed for students having an interest in development, procurement, promotion and sale of products.

Courses focus on textiles, product quality, consumer selections, buying, promotions, event planning, multi-channel retailing and visual merchandising. The curriculum incorporates hands-on practical experience through class assignments and service learning that utilizes the MCS Computer Design Lab and Adobe Illustrator, InDesign, and Photoshop.

Students receive industry perspective through participation in field experiences. As sophomores, students participate in a study tour to explore the various areas in the fashion merchandising and retail studies industry in Dallas. Students may also participate in the New York study tour as juniors or seniors. Two internships are required; one is completed in the sophomore year and the other in the senior year.

The field of Fashion Merchandising and Retail Studies offers students a variety of career opportunities. The FMRS curriculum provides students with the opportunity for a built-in minor to prepare for a specialized area with the FMRS field. Students may choose to minor in Art, Entrepreneurship, Journalism, or Marketing.

Program Information

Students in the Fashion Merchandising and Retail Studies program are eligible to apply for Upper Division status when they have a 2.2 GPA or above on at least 30 hours credit, including 6 hours of English, 3 hours of Mathematics, and 6 hours of Merchandising and Consumer Studies courses. They must have earned grades of "**C**" or better in English 101 and 102, 3 hours of mathematics and all MCS courses completed. Students must be admitted to upper division prior to enrolling in human ecology content courses numbered 300 or above. A grade of "**C**" or better is required in all MCS and HEC courses in order to meet graduation requirements.

Fashion Merchandising and Retail Studies Curriculum (BS)

Freshman Year
English (GER) 6
Mathematics (GER)
Mathematics 100, 101, or 102 3
Mathematics 112, 125, or Statistics 200 3
Merchandising and Consumer Studies 208, 229, 238, 248 12
Natural Sciences (GER) 3
Humanities (GER)
Communications 110 or 377 3
30

Sophomore Year
Accounting 201 3
Social/Behavioral Sciences (GER)
Social Science Elective 3
Psychology 3
Natural Sciences (GER) 3
Family and Child Studies 201 3
Human Ecology 257 3
Human Ecology 267 3
Elective 3
Humanities (GER)

History 102 3
Merchandising and Consumer Studies 219, 298 4
31

Junior Year
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 3
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER) 3
Marketing 300 3
Elective 3
Management 310 3
Merchandising and Consumer Studies 308, 368, 388 9
30

Senior Year
Humanities (GER) 3
Marketing 435 3
Human Ecology 478 3
Human Ecology 357 2
Merchandising and Consumer Studies 429, 488 6
Marketing 420 3
Electives 9
29

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

Requirements for a Minor in Fashion Merchandising and Retail Studies

MCS 208 and 18 additional hours of Merchandising and Consumer Studies courses with at least 9 hours at the 300- or 400-level. Courses may be selected from the following: Merchandising and Consumer Studies 219, 229, 238, 248, 298, 308, 368, 388, 429, 488, and 498.

Nutrition and Dietetics

Career Opportunities

The undergraduate program in Nutrition and Dietetics has been granted accreditation status by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL, 60606-6995, 312-899-0040 x5400, a specialized accrediting body recognized by the US Department of Education. The program is designed for students wishing to pursue careers as registered dietitians. The program allows students to master the ACEND Foundation Knowledge Requirements and Learning Outcomes, while earning a BS degree. Students completing the program must also complete a dietetic internship before they are eligible to take the Registration Examination for Dietitians. The dietetic internship at Louisiana Tech University is described in detail in the graduate program section of the University catalog.

The undergraduate program at Louisiana Tech University is a generalist program. Students complete course work that prepares them for clinical dietetics, community dietetics, and food service management. After successfully completing the undergraduate program, a dietetic internship and the Registration Examination for Dietitians, graduates are prepared to assume professional positions in health care facilities such as hospitals; community positions in health centers like public health departments and wellness centers; and management positions in food service.

Program Information

Students in Nutrition and Dietetics apply for upper division status prior to enrolling in the specialized phase of the program (junior and senior years). Students are eligible for upper division when they have completed at least 54 semester hours, including 35 hours of required courses, with a curriculum grade point average of 2.85 and no grade lower than a "**C**" in required courses.

A 2.85 curriculum GPA, with no grade lower than "**C**" in all curriculum courses is required for graduation.

Nutrition and Dietetics Curriculum (BS)

Freshman Year
English (GER)
English 101, 102 6
Family and Child Studies 201 3
Food and Nutrition 103, Elective 4
Humanities (GER)
English 210, 211, or 212 3
Mathematics (GER)
Mathematics 100 or 101 3
Natural Sciences (GER)
Chemistry 120, 121, 122 7
Social/Behavioral Sciences (GER)
Sociology 201 3
29

Sophomore Year
Accounting 201 3
Food and Nutrition 203, 220, 232, 274 12
Health Information Management 103 3
Human Ecology 257 3
Natural Sciences (GER)
Biological Sciences 225, 226, 227 7
Social/Behavioral Sciences (GER)
Psychology 102 3
31

Junior Year
Biological Sciences 214 4
Food and Nutrition 402, 403, 404, 414 12
Humanities (GER)
English 303 3
Communications 110 or 377, or English 363 3
Management 310 3
Mathematics (GER)
Statistics 200 3
28

Senior Year
Fine Arts (GER) 3
Food and Nutrition 302, 412, 423, 443, 463, 472 18
Human Ecology 357 2
Humanities (GER)
History 102 (IER) 3
Marketing 300 3
Social/Behavioral Sciences (GER)
Psychology Elective 3
32

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17).

Requirements for a Minor in Human Nutrition

Nineteen hours to include FNU 103, 203, 220, 253, 402, 403 and 404.

Division of Nursing

The Louisiana Tech University Division of Nursing prepares graduates for licensure as registered nurses. The Associate of Science in Nursing provides the solid foundation required for many career opportunities, including RN positions in acute care/critical care, emergency/trauma, medical-surgical units, pediatrics/neonatal units, and home health. Nursing is a high technology area, but it also requires individuals who are detail oriented and who have people skills and self-confidence. Nursing is one of the fastest growing occupations in the US. The Bureau of Labor Statistics (2014) projected employment of registered nurses to grow 19% between 2012 and 2022.

Accreditation

The Associate of Science degree in nursing has full approval from the Louisiana State Board of Nursing, 17373 Perkins Road, Baton Rouge, Louisiana 70810; telephone number 225-755-7500; www.lsbn.state.la.us. The program is also accredited by the Accreditation Commission for Education in Nursing, Inc. (ACEN), 3343 Peachtree Road, NE, Suite 850, Atlanta, GA, 30326; telephone 404-975-5000; fax 404-975-5020; www.acenursing.org

Enrollment in Clinical Nursing Courses

Admission to the University does not guarantee enrollment in clinical nursing courses. Admission is competitive and based on the following criteria:

- GPA (minimum of 2.6 on a 4.0 scale)
- ACT composite score
- Essay
- Application
- Three letters of recommendation

Permission to enroll in clinical nursing courses must be granted by the Louisiana State Board of Nursing (LSBN) prior to enrolling in a clinical nursing course. Approval includes a criminal background check. Applicants for **licensure** or the **right to practice as a student nurse** *shall be denied approval if the applicant has pled guilty, nolo contendere, or "best interest of" or the equivalent to, or has been convicted of committing, attempting to commit, or conspiring to commit: a crime of violence, a crime involving the production, manufacturing, distribution or dispensing of a controlled dangerous substance, a crime designated as a sex offense, or misappropriation crimes (unauthorized use of access card, credit card fraud, theft of assets of an aged person or disabled person, fraudulent acquisition of a credit card, unauthorized use of food stamps, Medicaid fraud, access devise fraud, bank fraud), or an equivalent crime in any jurisdiction.*

Criteria for Retention and Progression

A minimum grade of "C" is required for all courses in the nursing curriculum. A student is allowed to repeat only one nursing course (for grade below "C" or withdrawal) in the nursing curriculum. Requirements for re-enrollment are published in the Nursing Student Handbook. A second grade below "C" or withdrawal in any clinical nursing course constitutes dismissal from the program. Applicants for readmission must meet the admission and progression criteria in place at the time of re-application. If more than three quarters have elapsed since the student was enrolled in a nursing course, an application to be readmitted to the first quarter of clinical nursing courses must be approved by the Admissions Committee.

Additional Requirements

An initial physical examination is required upon admission. A criminal background check, 10-panel drug screen, and a TB skin test (PPD) are required annually. Students are subject to random drug/alcohol screening while enrolled in clinical nursing courses. Current immunizations for hepatitis B, seasonal influenza, and tetanus/diphtheria/pertussis (or medical exemption) are required. Acceptable titers (immunity) for measles, mumps, rubella (MMR) and varicella are also required. All nursing students must have current professional liability insurance, health insurance, and AHA healthcare provider CPR prior to and throughout any clinical nursing course. Specific requirements are subject to change, based on requirements of participating clinical agencies. Nursing students must be able to meet the Division of Nursing published Core Performance Standards (available on Division of Nursing web site). .

In addition to regular University tuition and fees, expenses for uniforms, supplies, equipment, books, testing fees, and fees related to application for licensure, NCLEX-RN examination, criminal background check and requirements listed above, as well as graduation fees are required for the nursing program.

Transfer

Transfer students are evaluated on an individual basis and must submit a letter of good standing from any previous nursing programs. Students may transfer credit earned for the general academic courses from other accredited universities. Students must meet admission and progression criteria at the time of application, as well as transfer admission requirements to Louisiana Tech University. A minimum grade of "**C**" is required for acceptance of transfer courses.

Transfer students must provide a syllabus and course description for all nursing courses for which transfer credit is possible, and must pass the credit exams for each exam taken. Students must also submit a letter of good standing from the school of nursing previously attended. Credit will not be granted for courses in nursing taken more than 3 quarters prior to admission. This policy also applies to credit granted by examination.

Upon successful completion of all course requirements, the student is eligible for graduation with an Associate of Science Degree in Nursing. Louisiana Tech University supports the 2+2 mechanism for RN to BSN completion in conjunction with other institutions such as NUSLA, ULM, GSU and OLHCC.

Nursing Curriculum (ASN)

Freshman Year

Biological Sciences 214, 225, 226, 227	11
English (GER)	3
Humanities (GER)	3
Mathematics (GER)	3
Nursing 109, 110, 112, 114, 116	20
	*40

Sophomore Year

Fine Arts (GER)	3
English (GER)	3
Mathematics (GER)	3
Nursing 210, 212, 214, 216	18
Psychology 208	3
	30

Total Semester Hours	70

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
* The program is designed to include one summer quarter of enrollment.

Accelerated (Extension) Program

The Division of Nursing provides an opportunity for licensed practical nurses who wish to pursue the Associate of Science Degree in Nursing through the Extension Program (LPN to RN articulation) at Glenwood Regional Medical Center in West Monroe, LA. Nursing graduates from state-approved practical nurse educational programs that are currently licensed to practice, have had one year of clinical experience, and meet the admission criteria are eligible for admission.

After satisfactory completion of two transition courses, Nursing 100 (Winter Quarter only) and Nursing 113, (Spring Quarter only), the student is eligible for advanced placement in the Nursing curriculum. Any student who fails to achieve in Nursing 113 may request admission to Nursing 109, 110, and 112 on the Ruston campus. Subsequent failure to achieve in any one of these courses prohibits progression and eligibility to re-enroll in nursing courses. Students must complete the following courses before enrolling in the fall quarter nursing course (Nursing 114): Biological Sciences 214, 225, 226 and 227; Math 101; Nursing 100 and 113. Students are also urged to complete the remaining 18 hours of General Education Requirements (GER) courses prior to fall enrollment.

The total course work for Extension students follows.

Fine Arts (GER)	3
Biological Sciences 214, 225, 226, 227	11
English (GER)	6
Humanities (GER)	3
Mathematics (GER)	6
Nursing 100, 113, 114, 116, 210, 212, 214, 216	40
Psychology 208	3
Total Semester Hours	72

(GER): General Education Requirements (pg. 17)
IER): International Education Requirement (pg. 17)

Chapter 11 – College of Business

Administration

Dean
Christopher L. Martin
Associate Dean, Graduate Studies and Research
John K. Francis (Interim)
Assistant Dean, Undergraduate Programs
VACANT
School of Accountancy and Information Systems
Andrea Drake, Director
Department of Economics and Finance
Otis W. Gilley, Head
Department of Management
Rebecca J. Bennett, Head
Department of Marketing and Analysis
Barry J. Babin, Head

Address

More information about the College of Business can be obtained by writing:

College of Business
P.O. Box 10318
Louisiana Tech University
Ruston, LA 71272
(318) 257-4526

and visiting www.business.latech.edu

Mission

Our mission—indeed, our passion—is the continuing advancement of the quality and relevance of our teaching and research, and of our relations with constituents. We seek to fulfill these aspirations through discovering new knowledge, creating meaningful learning experiences, preparing our students for successful professional careers, developing mutually beneficial partnerships, and *Building Distinction* by enhancing the reputation of the College.

Instructional Aims

In order to act according to our core values, uphold our mission, and achieve our vision, we must provide educational opportunities that enhance our students' continued development in:

- *Leading-Edge Theory and Practice in their Discipline:* more specifically, ensuring our graduates are prepared for entry-level professional positions related to their academic majors.
- *Cognitive Skills and Social Knowledge*, including the communication skills to build effective workplace relationships; the ability to critically and creatively evaluate problems and to think strategically; and the capacity to exercise judgment that includes ethical considerations in the solutions offered.
- *Management-Specific Skills and Knowledge* in the following areas:
  1. Financial theories, analysis, and markets
  2. Accounting concepts
  3. Production and distribution of goods and services
  4. Information technologies and systems
  5. Economic environments and organizations
  6. Marketing functions and strategies
  7. Managerial concepts and practices
  8. Strategic management

Accreditation

All degree programs offered by the College of Business are accredited by AACSB International - The Association to Advance Collegiate Schools of Business. Also, all programs offered by the School of Accountancy are separately accredited by AACSB.

Undergraduate Degrees Offered

The baccalaureate degree offered by the College is the Bachelor of Science degree. The four year curricula leading to the degree of Bachelor of Science are:

- Accounting
- Business Administration
- Business Economics
- Computer Information Systems
- Finance
- Management
- Management – Sustainable Supply Chain Management
- Marketing

Post-Baccalaureate Certificates Offered

The following program is offered to individuals holding a baccalaureate degree from a regionally accredited institution:

- Business Foundations

History

Among the purposes listed in the original act creating the University was to give instruction in business subjects, and Tech's first graduate, Harry Howard, graduated in 1897 in business. In 1940, the School of Business Administration was created by the Louisiana State Board of Education. In 1970, Tech was designated as a University and the School became the College of Administration and Business. In 2007, the name was changed to the College of Business.

Minors Offered

Non-Business Majors

Students pursuing an undergraduate major in a college other than Business may earn a minor in one of the following fields:

- Accounting
- Business Administration
- Business Economics
- Business Leadership
- Computer Information Systems
- Entrepreneurship
- Finance
- Management
- Marketing
- Sports Marketing
- Sustainable Supply Chain Management

A student must earn a grade of "**C**" or better in each course applied toward meeting the requirements of a minor. This requirement is applicable to new undergraduate students (freshmen and transfers) whose initial enrollment was Fall Quarter 2003 or quarters thereafter. In addition, a student must complete at least 50% of the courses applied toward the minor at Louisiana Tech.

Accrediting agency standards mandate that students in other colleges pursuing a minor or taking electives in Business are limited to a maximum of 27 hours of business courses. Most 300- and 400-level business courses are open to non-business students with the proper foundation courses (prerequisites) and academic background. For further information contact the appropriate head/director of the academic unit that offers the courses.

Business Majors

Students enrolled in the College of Business may pursue a minor in another field of business. Students may apply one "principles course" in the major (Economics minors may count two principles courses—ECON 202 and 312) to the minor, as well as 6 hours of Business Electives. The other 9 hours required for the completion of the minor will be in addition to the requirements for the major.

A student must earn a grade of "**C**" or better in each course applied toward meeting the requirements of a minor. This requirement is applicable to new undergraduate students (freshmen and transfers) whose initial enrollment was Fall Quarter 2003 or quarters thereafter.

Undergraduate Admissions and Transfer Policies

Admissions Policies

Louisiana Tech's College of Business seeks to assist students in determining and achieving appropriate educational objectives. Part of the College's responsibility to current and future students, and to the general public, is to admit to the College only those who, by past educational preparation and demonstrated capability, are prepared to complete their intended curriculum at the required level of quality.

Generally, students who have an overall, attempted average of 2.0 or higher and are not on probation may be admitted. The complete current statement of may be viewed on the College's web site or obtained upon request to the Dean's office, which makes all admissions decisions and transfers students into the College of Business at the beginning of each quarter in accordance with policies in effect at that time.

Transfer Policies

With some exceptions, the College of Business accepts for degree credit work, such as that taken by examination and at other institutions, in accordance with published policies of Louisiana Tech University as stated in the general information section of the University's Catalog. The final determination of degree credit in any business curriculum is, however, made by the Dean's office. Transfer evaluations will reflect all grades earned at another institution, but only grades of "**C**" or above will be accepted for credit.

Scholastic Standards

Students pursuing degrees in Business must make a "**C**" or better in all courses in their major area. For example, all finance majors are required to make a "**C**" or better in all finance courses.

Students are responsible for taking courses in the proper order and with the appropriate prerequisites. Credit will not be given for courses taken without the appropriate prerequisites and/or foundation courses.

Students in good standing may carry a normal course load as defined by the University. However, when a student is placed on probation, he/she may schedule no more than 9 semester hours per quarter.

Each time a student is suspended, his/her total academic status is subject to a review by the College's Scholastic Standards Committee. In addition to acting on appeals for reinstatement from a suspension, the Committee may impose special conditions on a suspended student. The Committee may also un-enroll a student from the College when the requirements for admission are not being met by the student.

Graduation Requirements

Each student must be admitted to and spend the senior year enrolled in a degree program in the College. In addition, 50% of the required business courses must be taken at Tech, and the six courses in each degree program that define the "major" must be taken at Louisiana Tech. The number of semester hours defined in the senior year and other graduation requirements are the same as for the University.

Business 495, the capstone course, should be taken by students in the quarter of or the quarter before their graduation. Before taking the capstone course, a student must take and pass all core business courses: Accounting 201 and 202, Business 420, Computer Information Systems 310, Economics 201, 202, and 312, Finance 318, Management 310 and 333 (or Accounting 308), and Marketing 300.

Catalog Requirements and Changes

All official notices affecting business undergraduate students are posted on the bulletin board directly across the hall from the Dean's office (COBB 202) and are posted on the College's web site www.business.latech.edu. The notices placed thereon officially update the University Catalog and are binding on students pursuing programs offered by the College.

When students enroll in a degree program in the College, they are subject to all University and Business policies then in effect. Each student is responsible for meeting all Catalog requirements for graduation, including taking courses in the proper sequence as shown in each curriculum.

When course requirements are changed in the curricula, they are to improve the education of students. Such changes are not retroactive on work already taken by admitted students, but will apply on work yet to be taken, except that the total remaining hours required for graduation cannot be increased and a student is not required to take an added course not available prior to graduation or for which the specified prerequisite course(s) will not have been required.

Each time a student changes curricula or concentrations, reevaluation of all work already taken is done in terms of that particular program's requirements. Five years following the first admission date to a four year curriculum, a reevaluation of all work previously taken may be required.

Electives

General Education Requirements (GER) in the Natural Sciences must be selected from the following: Physical Sciences - Chemistry 120, 121; Geology 111, 112 or 201, 202; Physics 205, 206, 220. Biological Sciences: Biological Sciences 101, 102.

Humanities (GER) courses must be selected from the following: History 101, 102, 201, 202, 360; English 210, 211, 212; Communications 110 or 377; Philosophy 201; any foreign language at the 200-level or above.

Internships

Each discipline in the College of Business has an internship course that students may apply as credit toward their academic degrees. To register for an internship course, a student should contact the department head/director for his/her major area prior to early advising to secure permission for enrolling in the internship course(s). The student will be advised as to applicable policies and requirements for receiving credit in the course. In addition, the Internship Guidelines are posted on the College's web site.

Second Baccalaureate Degree in Business

Students outside the College planning to pursue a second baccalaureate degree in Business should see the appropriate department head/director to plan their course work and be advised as to the order in which business courses must be taken.

Scholarships

All incoming freshmen students become eligible for scholarships by applying for admission to the University and submitting the requisite scholarship applications available through the Office of Undergraduate Admissions. The following are examples of endowed scholarships available to students pursuing a degree in the College of Business. Scholarships administered by the College are awarded by faculty scholarship committees and information may be obtained by contacting the Office of the Dean.

- William Roy and Maxine R. Adams, Jr. Scholarship (Accounting)
- Louis R. Brill Family Endowed Scholarship
- Judge James E. Clark & Family Scholarship
- Century Telephone Enterprises, Inc./Clarke M. Williams, Jr. Memorial Scholarship
- O.B. Clark Endowment for Business Scholarships
- Alvora Edens Scholarship
- W. Rufus and Brenda Kelly Estis Endowed Scholarship
- Glen Guilkey Endowed Scholarship (Marketing)
- Loraine N. Howard Endowed Scholarship (CIS)
- Humana Foundation/McCallister Scholarship

- Lothar I. Iverson Memorial Scholarship
- The William A. and Virginia Lomax Marbury Endowment for Business Scholarships
- Todd McNaughton Memorial Endowed Scholarship
- Travis E. Melton Scholarship (Accounting)
- James R. Michael Scholarship
- J. Murray Moore Scholarship
- Edward L. Moyers Scholarship
- Amy L. Myers Memorial Scholarship (CIS)
- Lawson L. Swearingen–Commercial Union Assurance Companies Scholarship
- The George Curtis and Esther Belle Taylor Endowment for Business Scholarships
- Cynthia Ann Clark Thompson Memorial Scholarship (Accounting)
- The Thomas A. and Lucinda Ritchie Walker Endowment Fund Scholarship

Organizations

Beta Gamma Sigma

Beta Gamma Sigma is the national honorary scholastic society for students in all fields of business. It is the scholastic society recognized by the Accreditation Council of the Association to Advance Collegiate Schools of Business (AACSB). A school or college of business administration must be a member of the Accreditation Council of the AACSB in order to have a chapter of Beta Gamma Sigma. Membership in the society is highly prized as a badge of merit recognized by leading business administrators everywhere.

Business Students Association

The official student body organization of the College is the Business Students Association. Dues are assessed each quarter, and the assessment is an official charge recognized by the College.

Other professional organizations for students include:

- Accounting Society
- American Marketing Association
- Association of Information Technology Professionals
- Association of Business, Engineering, and Science Entrepreneurs
- Beta Alpha Psi Fraternity (accounting honor society)
- Delta Sigma Pi (professional business fraternity)
- Financial Management Association
- Omicron Delta Epsilon (economics honor society)
- Phi Beta Lambda
- Society for Human Resource Management

Bachelor Degree Programs

School of Accountancy & Information Systems

The accounting profession affords individuals a large variety of opportunities in business. Graduates are found in numerous managerial positions since their accounting background offers them upward mobility in any business environment. Accounting also continues to be a field with one of the highest demands for graduates. To meet this demand, the curriculum provides a thorough education in the accounting discipline, together with a broad liberal arts and business background.

Mission

The School of Accountancy (SOA) is dedicated to the intellectual growth of its students and to their preparation for successful careers and productive lives. To this end, the School offers academic degrees in accounting at the undergraduate, master's, and doctoral levels characterized by extensive, personal faculty-student interaction. The curricula are designed to provide students an understanding of business administration with a focus on accounting.

Our undergraduate program equips students with the knowledge and technological skills for positions in public accounting, industry, and government, and prepares students for graduate programs. The masters' programs provide continuing professional development for students who desire careers where stronger skills are essential. The doctoral program in accounting prepares students for academic careers primarily in universities that value a balanced emphasis among instruction, research, and service.

Programs

The School of Accountancy undergraduate, master's, and doctoral degree programs are separately accredited by AACSB International - The Association to Advance Collegiate Schools of Business. The School is a charter member of the Federation of Schools of Accountancy and currently holds full membership in this organization.

The School of Accountancy offers a four year accounting program leading to the Bachelor of Science (BS) degree and a fully integrated five year accounting program leading to the Master of Professional Accountancy (MPA) degree.

Accounting Curriculum (BS)

Program Objectives

Broad Objectives

1. Provide students with the knowledge and tools needed to obtain meaningful employment and have successful careers.
2. Prepare students for graduate school.
3. Provide the educational background for students to meet the educational requirements of various professional accounting certification examinations.

Learning Objectives

Accounting undergraduates will:

1. Have basic knowledge of key concepts in major business disciplines.
2. Have in-depth knowledge of accounting.
3. Be able to apply accounting principles to solve problems.
4. Be aware of ethical issues in the discipline.
5. Be effective communicators.
6. Be proficient with technology related to the accounting discipline.

Program Requirements

A grade of "**C**" or better must be earned in all accounting courses. Students may not enroll in higher level accounting courses until this minimum in previous courses has been met. Students enrolling in the accounting program will normally be allowed to schedule a maximum of two accounting courses simultaneously in a single quarter.

Transfer students electing this curriculum will be required to take at least 15 semester hours in accounting courses numbered 300 and above, of which at least 6 hours must be at the 400-level, at Louisiana Tech. Any student currently enrolled in the accounting program may not transfer an accounting course from another institution without the approval of the director.

Pre-Professional Curriculum

Freshman Year

Business 110	3
Computer Literacy (GER)	
Computer Information Systems 110	3
English (GER)	6
Humanities (GER)	
History	3
Mathematics (GER)	
Mathematics 125, 222	6
Natural Sciences (GER)	3
Social/Behavioral Sciences (GER)	
Psychology 102 or Sociology 201	3
Elective	3
	30

Sophomore Year

Accounting 201, 202	6
Business Law 255	3

Social Science (GER)
Economics 201, 202 6
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER) 6
Social/Behavioral Sciences (GER)
Political Science 201 3
Quantitative Analysis 233 3
30

Students are reminded of their obligation to obtain program information and advice on meeting all program requirements from the director's office.

NOTE: Eligibility to take the Certified Public Accountant (CPA) examination requires 150 hours of college credit, as well as other specific requirements in accounting and business law. These requirements may be viewed at cpaboard.state.la.us/becoming-a-cpa/#section4, and you can also be advised in the School of Accountancy office. Exam requirements can vary some by state, and the School's website (business.latech.edu/accounting) shows exam requirements for other state boards under "other links" on the left side of the web page.

Advanced Professional Curriculum

Junior Year
Accounting 303, 304, 305, 307 12
Fine Arts (GER) 3
Business Communication 305 or English 303 or 336 3
Economics 312 3
Humanities (GER)
Communications 110 or 377 3
Management 310 3
Marketing 300 3
30

Senior Year
Accounting 308, 413 6
Accounting Elective (300- or 400-level) 3
Business 495 3
Business 420 1
Computer Information Systems 310 3
Finance 318 3
Humanities (GER) 3
Elective 2
Business Elective* 3
International Business Elective (IER) 3
30

Total Semester Hours for B.S. degree 120

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.
Students must meet established GPA requirements and submit an admission application with Graduate Management Admission Test (GMAT) scores to be considered for admission to the graduate phase.

Master of Professional Accountancy Curriculum (MPA)

Graduate Year
Accounting 507, 508, 513, 519, and 521 15
Accounting Electives* 6
Business Electives** 6
Business Law 410 3
30

Total Semester Hours for MPA degree 150

*Accounting 505 may not be taken as an elective. May include 400-level accounting courses approved for graduate credit.

**Business Electives are chosen by the student from 500-level, non-accounting business courses in consultation with the faculty advisor.

Minor in Accounting for Non-Business Students:

Accounting 201, 202, 303; and 9 hours of 300- or 400-level courses in Accounting to complete 18 semester hours.

Minor in Accounting for Business Students:

Accounting 202, 303; and 12 hours of 300- or 400-level courses in Accounting to complete 18 semester hours.

Computer Information Systems Curriculum (BS)

The Computer Information Systems (CIS) curriculum prepares students for careers by stressing the application and use of information technology in the business environment. The CIS curriculum provides learning experiences in systems analysis, design, and implementation; project management; e-commerce; telecommunications; networking; databases; programming; and interpersonal communication. As the increase in the use of technology in business continues, growth is predicted in the demand for people with these skills.

Program Objectives

Students will understand the "real world" of information systems as enablers of successful performance, organizational strategy, and the integration of all organizational levels and business functions.

Students will acquire skills in designing and implementing information technology solutions that enhance organizational performance; modeling organizational process and data; defining and implementing technical and process solutions; managing projects; integrating systems; acquiring, converting, transmitting, and storing data and information; and achieving organizational goals through information technology applications.

Program Requirements

A grade of "**C**" or better must be earned in all CIS courses.

Freshman Year
Business 110 3
Computer Literacy (GER)
Computer Information Systems 110 3
English (GER) 6
Humanities (GER)
History 3
Mathematics (GER)
Mathematics 101, 125 6
Natural Sciences (GER) 3
Social/Behavioral Sciences (GER)
Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202 6
Business Law 255 3
Social Science (GER)
Economics 201, 202 6
Computer Information Systems 315 3
Natural Sciences (GER) 6
Social Science (GER)
Political Science 201 3
Quantitative Analysis 233 3
30

Junior Year
Fine Arts (GER) 3
Business Communication 305 or English 303 or 336 3
Business 420 1
Elective 2
Humanities (GER)
English 210, 211, or 212 3
Economics 312 3
Computer Information Systems 310 3
Finance 318 3

Management 310, 333 6
Marketing 300 3
30

Senior Year
Business 495 3
Computer Information Systems 323, 335, 421, 444, 450 15
Business Elective* 3
International Business Elective (IER) 3
Humanities (GER)
Communications 110 or 377 3
Additional Humanities Course 3
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.

Minor in Computer Information Systems for Non-Business Students:

Computer Information Systems 310, 315; and 12 hours of 300- or 400-level courses in Computer Information Systems to complete 18 semester hours (Students pursuing this minor must have credit for CIS 110 or its equivalent prior to registering for CIS 310).

Minor in Computer Information Systems for Business Students:

Computer Information Systems 310, 315; and 12 hours of 300- or 400-level courses in Computer Information Systems to complete 18 semester hours

Department of Economics and Finance

Business Administration Curriculum (BS)

Rapid changes in the business world have made it essential that future business administrators be broadly educated in order to adjust and adapt themselves to changing practices. Therefore, this curriculum allows a student to receive instruction in a variety of functional areas of business. This program is appropriate for non-technical, entry-level positions and is an excellent background for students planning certain advanced degrees in business and law. It is an ideal curriculum for students interested in the area of International Business. The senior-year discipline electives may include various international business courses offered in the College.

Program Objectives

Students will obtain a broad exposure to the field of business. Students can tailor the curriculum to match their career interests.

Program Requirements

A grade of "**C**" or better must be earned in all courses designated with **.

Freshman Year
Business 110 3
Computer Literacy (GER)
Computer Information Systems 110 3
English (GER) 6
Humanities (GER)
History 3
Mathematics (GER)
Mathematics 101, 125 6
Natural Sciences (GER) 3
Social/Behavioral Sciences (GER)
Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202 6
Business Law 255 3
Social/Behavioral Sciences (GER)
Economics 201, 202 6
Political Science 201 3
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER) 6
Quantitative Analysis 233 3
30

Junior Year
Fine Arts (GER) 3
Business Communication 305 or English 303 or 336 3
Computer Information Systems 310 3
Economics 312 3
Finance 318 3
Management 310, 333 6
Marketing 300 3
Humanities (GER)
Communications 110 or 377 3
Additional Humanities Course 3
30

Senior Year
Business 495 3
Business 420 1
Elective 2
Business Elective* 3
International Business Elective (IER) 3
Business Elective* ** 3
Accounting or CIS Elective (300- or 400-level) ** 3
Economics Elective (300- or 400-level) ** 3
Finance Elective (300- or 400-level) ** 3
Management Elective (300- or 400-level) ** 3
Marketing Elective (300- or 400-level) ** 3
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.
A grade of "C**" or better must be earned in this course.

Minor in Business Administration for Non-Business Students:

Accounting 201, 202; Computer Information Systems 310; Economics 202; Finance 318; Management 310; and Marketing 300 for a total of 21 semester hours.

Business Economics Curriculum (BS)

Economics majors are employed in all sectors of the economy--government, industry and finance, and non-profit organizations. In addition, undergraduate training in economics is an ideal major for those contemplating continuing their formal education in public administration, general business administration, law, or pre-medicine.

The use of economists in all areas of the economy has expanded rapidly and is expected to continue. Business economists perform a wide variety of tasks for governmental agencies and private organizations, such as statistical and general research, pricing and marketing, financial analysis, economic regulation, and forecasting business conditions.

To function effectively, the business economist must have both knowledge of theory and an understanding of economic and business facts and institutions. Although not all economists specialize in statistical or mathematical analysis, an adequate knowledge of mathematics is usually required. Students can also broaden their training by combining their economics major with other areas of interest.

Program Objectives

1. Students will understand price, production, and distribution theories and practices.

2. Students will understand the dynamics of the supply and demand for money and the role of the central bank in the money supply process.
3. Students will understand the origins and operations of human capital allocation.
4. Students will be able to analyze monetary and fiscal policies and their impact on business and society.

Program Requirements

A grade of "**C**" or better must be earned in all economics courses.

Freshman Year
Business 110 3
Computer Literacy
Computer Information Systems 110 3
English (GER)....6
Humanities (GER)
History....3
Mathematics (GER)
Mathematics 101, 125....6
Natural Sciences (GER)....3
Social/Behavioral Sciences (GER)
Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202....6
Business Law 255 3
Social/Behavioral Sciences (GER)
Economics 201, 202....6
Political Science 201....3
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER)....6
Quantitative Analysis 233.... 3
30

Junior Year
Fine Arts (GER)....3
Business Communication 305 or English 303 or 336....3
Computer Information Systems 310....3
Economics 312....3
Finance 318....3
Humanities (GER)
Communications 110 or 377....3
Additional Humanities Course 3
Management 310, 333....6
Marketing 300....3
30

Senior Year
Business 495 3
Business 420 1
Business Elective* 3
International Business Elective (IER)....3
Elective 2
Economics 408, 437....6
Economics Electives (300- or 400-level)....9
Accounting or Finance Elective **....3
30

Total Semester Hours....120

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.
A grade of "C**" or better must be earned in this course.

Minor in Economics for Non-Business Students:

Economics 201, 202, 312; and 9 hours of Economics courses at the 300- or 400- level to complete 18 semester hours.

Minor in Economics for Business Students:

Economics 202, 312; and 12 hours of Economics courses at the 300- or 400- level to complete 18 semester hours.

Finance Curriculum (BS)

The Finance curriculum provides students with the background to enter a variety of financial fields. The curriculum is designed for students who have an interest in financial management (including financial position analysis, working capital management, funds acquisition and capital investment analysis), commercial banking, securities analysis, insurance, and real estate.

Any student currently enrolled in the finance program may not take a finance course at another institution without the prior approval of the department head. In addition, finance majors are encouraged to take 3 hours (one course) of their Directed Electives in accounting or economics.

Program Objectives

1. Students will know the fundamentals of financial management, securities analysis, capital markets, and financial institutions.
2. Students will be able to access and utilize financial databases.
3. Students will understand global capital flows.
4. Students will be able to make decisions within a market valuation context.

Program Requirements

A grade of "**C**" or better must be earned in all finance courses.

Freshman Year
Business 110 3
Computer Literacy (GER)
Computer Information Systems 110 3
English (GER)....6
Humanities (GER)
History....3
Mathematics (GER)
Mathematics 101, 125....6
Natural Sciences (GER)....3
Social/Behavioral Sciences (GER)
Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202....6
Business Law 255 3
Social/Behavioral Sciences (GER)
Economics 201, 202....6
Political Science 201....3
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER)....6
Quantitative Analysis 233....3
30

Junior Year
Fine Arts (GER)....3
Business Communication 305 or English 303 or 336....3
Computer Information Systems 310....3
Economics 312....3
Finance 318, 319....6
Humanities (GER) 3
Management 310....3
Management 333 or Accounting 308....3
Marketing 300....3
30

Senior Year
Business 495 3
Business 420 1
Elective 2
Business Elective* 3
International Business Elective (IER)....3

Finance 414, 425 6
Finance Electives 9
Humanities (GER)
Communications 110 or 377 3
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.

Minor in Finance for Non-Business Students:

Economics 202; Accounting 201, 202; Finance 318; and 9 hours of 300- or 400- level Finance courses to complete 21 semester hours.

Minor in Finance for Business Students:

Finance 318; and 15 hours of 300- or 400- level Finance courses to complete 18 semester hours.

Department of Management

Management Degree Programs

Managers are found at every level and in every kind of private and public organization. All managers have the responsibility of helping their organizations meet their objectives.

A career in management is ideal for those who possess good leadership qualities and have the ability to work well with other people. Individuals interested in management should be creative, outgoing, and have the ability to guide and motivate people toward common goals.

Management Curriculum (BS)

Designed for the student who desires training in general business management, the Business Management concentration allows a student to take courses from a broad array of management topics, including human resource management, leadership, negotiations, and industrial management. The Entrepreneurship concentration prepares a student to own his or her own business, through coursework in small business management, new venture research, and business plan development. The Human Resource Management concentration focuses on personnel issues such as employment law, compensation, and staffing.

Graduates of this program often seek management trainee positions with established firms or governmental bodies. Others use their training to become entrepreneurs and start their own businesses.

Program Objectives

1. Students will be able to assess current organizational and environmental realities and to anticipate future challenges and opportunities in order to accomplish organizational objectives.
2. Students will understand organizational structure and process, be able to facilitate the development of a strategic perspective, be able to manage the processes of an existing enterprise, and to design the processes and structures needed for a new enterprise.
3. Students will be able to work in a culturally diverse environment and to manage contemporary organizations effectively.

Program Requirements

A grade of "**C**" or better must be earned in all management courses.

Freshman Year
Business 110 3
Computer Literacy (GER)
Computer Information Systems 110 3
English (GER) 6
Humanities (GER)
History 3
Mathematics (GER)
Mathematics 101, 125 6
Natural Sciences (GER) 3
Social/Behavioral Sciences (GER)
Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202 6
Business Law 255 3
Social/Behavioral Sciences (GER)
Economics 201, 202 6
Political Science 201 3
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER) 6
Quantitative Analysis 233 3
30

Junior Year
Fine Arts (GER) 3
Business Communication 305 or English 303 or 336 3
Business 420 1
Computer Information Systems 310 3
Economics 312 3
Finance 318 3
Management 310, 333 6
Marketing 300 3
Concentration Courses** 6
31

Senior Year
Business 495 3
Concentration Courses** 12
Business Elective* 3
International Business Elective (IER) 3
Elective 2
Humanities Elective (GER)
Additional Humanities Course 3
Communications 110 or 377 3
29

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.
** Concentration courses chosen by the student in consultation with a advisor from one of the following concentrations:

Business Management Concentration. Management 360 or 415 or 419 or 440; Management 468 or 470; Management 460 or 474 or 477; plus 9 hours of Management or Entrepreneurship electives at the 300- or 400-level.

Entrepreneurship Concentration. Management 340, 400, 468; Entrepreneurship 402, 403, 404, 460; and Entrepreneurship 430 or Management 360 or 415, or 440.

Human Resources Management Concentration: Business Law 447; Management 472 and 478; 468 or 470; 360 or 415 or 419 or 440; plus 3 hours of Management or Entrepreneurship electives at the 300- or 400-level.

Minor in Entrepreneurship for Non-Business Students:

A minimum of 18 hours consisting of Business Law 255; Management 310, 340 (or Entrepreneurship 460), 400, and 468; Accounting 201 or Marketing 300.

Minor in Business Leadership for Business and Non-Business Students:

A minimum of 18 hours consisting of Management 310, 360, 415, 440, and 6 additional hours selected from two of the following courses: Business 425, Management 340, 470, Marketing 307, 425.

Minor in Management for Non-Business Students:

Management 310; and 15 hours from 300- and 400-level Management courses to complete 18 semester hours.

Minor in Management for Business Students:

Management 310; and 15 hours from 300- and 400-level Management courses to complete 18 semester hours. (MGMT 333 cannot be used for credit in the minor.)

Management – Sustainable Supply Chain Management Curriculum (BS)

Sustainable Supply Chain Management prepares students to manage and coordinate all logistical functions in an enterprise, ranging from acquisitions to receiving and handling through internal allocations of resources to operations units to the handling and delivery of output. The focus on sustainability is the key distinction of this program. A sustainable supply chain has the capability of meeting current and future customer demands through the cultivation, reuse and repurposing of resources, the lifeblood of any organization.

Program Requirements

A grade of "**C**" or better must be earned in all management courses.

Freshman Year
Business 110 3
Computer Literacy (GER)
  Computer Information Systems 110 3
English (GER)....6
Humanities (GER)
  History....3
Mathematics (GER)
  Mathematics 101, 125....6
Natural Sciences (GER)
  Chemistry, Physics, or Geology....3
Social/Behavioral Sciences (GER)
  Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202....6
Business Law 255 3
Social/Behavioral Sciences (GER)
  Economics 201, 202....6
  Political Science 201....3
Humanities (GER)
  English 210, 211, or 212 3
Natural Sciences (GER)
  Biological Sciences 211, 212 6
Quantitative Analysis 233....3
30

Junior Year
Fine Arts (GER) 3
Business Communication 305 or English 303 or 336....3
Business 420 1
Computer Information Systems 310 3
Elective 2
Economics 312....3
Finance 318....3
Management 310, 333....6
Marketing 300....3
Humanities (GER)
  Additional Humanities Course....3
30

Senior Year
Business 495 3
Management 460, 474,476, 477....12
Computer Information Systems 325 or Accounting 308 3
Entrepreneurship 460 3
Business Elective* 3
International Business Elective (IER)
Economics 485 or Finance 485....3
Humanities (GER)
  Communications 110 or 377 3
30

Total Semester Hours....120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.

Minor in Sustainable Supply Chain Management:

Management 333, 460, 474, 476, 477 and 3 additional hours from one of the following: CIS 325, ACCT 308, ENTR 460, ECON 485 or FINC 485.

Department of Marketing and Analysis

Marketing Curriculum (BS)

Marketing is the focal point of many business operations. The Marketing curriculum prepares individuals for a wide range of positions in this exciting field. These positions include retailing, advertising, sales and sales management, wholesaling, product development, public relations, and marketing research. Students majoring in marketing will pursue one of three concentrations: Key Account Development, Marketing Analytics, or Sports Marketing.

Program Objectives

1. Students will understand the domestic and global aspects of product management, pricing, distribution, and promotion of goods, services, and ideas that satisfy both consumer and organizational buyers.
2. Students will understand the marketing process and its interaction with the legal, political, economic, social, cultural, technological, competitive, and ethical environments. This understanding of the marketing process includes competitive analysis and strategic planning and how these functions facilitate the operation of the overall organization.

Program Requirements

A grade of "**C**" or better must be earned in all marketing courses.

Freshman Year
Business 110 3
Computer Literacy (GER)
  Computer Information Systems 110 3
English (GER)....6
Humanities (GER)
  History....3
Mathematics (GER)
  Mathematics 101, 125....6
Natural Sciences (GER)....3
Social/Behavioral Sciences (GER)
  Psychology 102 or Sociology 201 3
Elective 3
30

Sophomore Year
Accounting 201, 202....6
Business Law 255 3
Social/Behavioral Sciences (GER)
  Economics 201, 202....6
  Political Science 201....3
Humanities (GER)
  English 210, 211, or 212 3
Natural Sciences (GER)....6
Quantitative Analysis 233....3
30

Junior Year
Fine Arts (GER)....3
Business Communication 305 or English 303 or 336....3

Business 420 1
Computer Information Systems 310 3
Elective 2
Economics 312 3
Finance 318 3
Management 310, 333 6
Marketing 300 3
Humanities (GER)
Additional Humanities Course 3
30

Senior Year
Business 495 3
Marketing 320, 473 6
Concentration Courses* 18
Humanities (GER)
Communications 110 or 377 3
30

Total Semester Hours 120

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17): Accounting 485, Economics 485, Finance 485, Management 485, or Marketing 485.
*Concentration courses chosen by the student in consultation with advisor from one of the following concentrations:

General Marketing Concentration. Business elective**, International Business elective (IER), Marketing 482, and 9 hours from the following: Marketing 307, 390, 420, 425, 435, 485; Management 460, 477.

Key Account Development Concentration. Business elective**, Marketing 307, 425, 482, 485 (IER), and 390 or Computer Information Systems 323, or Management 415.

Sports Marketing Concentration. Business 410, International Business Elective (IER), Marketing 348, 390 or 435, 420 or 482, and 307 or 425 or approved Quantitative Analysis elective.

Marketing Analytics Concentration: Business elective**, International Business Elective (IER), Marketing 482, Quantitative Analysis 432 or Computer Information Systems 315 or 323, Marketing 435 or 390, and 425 or Computer Information Systems 325 or approved Quantitative Analysis elective.

**Business Electives are chosen by the student in consultation with the faculty advisor and must be a 300- or 400-level business course.

Minor in Marketing for Non-Business Students:

Marketing 300; and 15 hours from 300- and 400-level Marketing courses to complete 18 semester hours.

Minor in Sports Marketing for Non-Business Students:

Marketing 300, 348; Business 410; Business Law 255; Management 310; and 6 hours chosen from the following courses: Marketing 307, 320, 420; Finance 318; Quantitative Analysis 233.

Minor in Marketing for Business Students:

Marketing 300; and 15 hours from 300- and 400-level Marketing courses to complete 18 semester hours.

Chapter 12 – College of Education

Administration

Dean
Donald N. Schillinger
Director, Graduate Studies & Research
John D. Harrison
Director, Certification & Professional Experiences
Dawn Basinger
Department of Curriculum, Instruction, & Leadership
Bryan L. McCoy, (Interim) Head
Department of Kinesiology
Lanie Dornier, Head
Department of Psychology & Behavioral Sciences
Donna Thomas, Head
Professional Development & Research Institute on Blindness
Eddie Bell, Director
A.E. Phillips Laboratory School
Joanne Hood, Director
Science & Technology Education Center
Lindsey Keith-Vincent, Director

Address

More information about the College of Education can be obtained by writing

Louisiana Tech University
College of Education
P.O. Box 3163
Ruston, LA 71272
(318) 257-3712

or visiting www.latech.edu/education.

Vision

Our vision is of an inclusive learning community renowned for fostering competent, ethical, and caring professionals who contribute significantly to a diverse and dynamic world.

Mission

The mission of the College of Education is three-fold:

1. To provide high quality educational experiences for current and prospective professionals from baccalaureate through doctoral levels;
2. To enhance and extend the knowledge bases undergirding professional programs through research and other scholarly activities; and
3. To deliver professional services to the various business, civic, and educational communities through collaborative endeavors.

Goals

- To recruit, admit, and graduate quality candidates and students who exemplify the capacity and commitment to become effective public educators, school counselors, psychologists, and health promotion specialists in diverse settings throughout Louisiana and elsewhere;
- To provide education and human sciences students with quality programs of study and diverse practical experiences that prepare them to be wholly proficient in the knowledge, skills, and dispositions of their chosen areas of concentration and which are linked to competencies identified by recognized professional organizations;
- To support continuous personal and professional development opportunities for all candidates, students, and instructors;
- To recruit and retain a diverse student body;
- To recruit and retain diverse faculty who demonstrate high levels of competencies in the College's programs of study and who are committed to the College's vision, mission, philosophical approaches, and professional model;
- To continue to collaborate closely with personnel in the other colleges at Louisiana Tech University as well as at other university campuses, state agencies, professional organizations, school and health systems, and the community-at-large who are involved in the preparation of teacher candidates and other program students;
- To continually refine curricula and instructional procedures ensuring that research, theory, and professional practice optimally inform all programs;
- To enable faculty and program graduates to serve as positive change agents through the implementation of innovative ideas, strategies, research, and technology;
- To generate original, quality research by faculty, candidates, and students consistent with the College programs and goals;
- To maintain a physical and psychological environment that is conducive to optimal student and faculty growth and development;
- To maintain positive interaction with alumni, corporate sector, public institutions, and other valued members of the College's external community.

Accreditation

The University is accredited by the Southern Association of Colleges and Schools (SACS) and the Teaching Programs are approved by Louisiana State Board of Elementary and Secondary Education (BESE). The College of Education is also accredited by the National Council for the Accreditation of Teacher Education (NCATE) for the preparation of teachers at the undergraduate and advanced degree levels.

History and Organization

Since the founding of Louisiana Tech in 1894, the education of teachers has been a primary aim of the institution. Highlights in the history of the College of Education include: A.E. Phillips Laboratory School was created by the Legislature in 1916; the State Board of Education approved teacher education curricula in 1925; the State Board recognized the reorganization of the curricula in 1926; the Department of Education granted the organization of a separate school in 1933; physical education was transferred from the School of Arts and Sciences to the School of Education as a department in 1948; the Department of Psychology and Guidance was organized in 1965; the School was elevated to the level of College of Education in 1970 with the Division of Research and Publications being established; the State Board approved a reorganization of the College which created a Division of Research and Service and a Division of Curriculum and Instruction (Teacher Education) in 1972; Counseling and Psychology changed to Behavioral Sciences in 1975; and in 1994 the Department of Curriculum, Instruction, and Leadership replaced the Teacher Education area.

The State Board of Education (1957-1974) authorized granting the MA in Art Education, Elementary Education, English Education, Industrial/Organizational Psychology, Music Education, Social Studies Education, Special Education, and Vocational Guidance, and the MS in Biology Education, Business Education, Chemistry Education, Mathematics Education, Physics Education, and Health and Physical Education. The State Board of Education granted approval to offer the Specialist Degree in 1967 and extension courses in 1968. In 1994, the PhD in Counseling Psychology and the EdD in Curriculum and Instruction and Educational Leadership were authorized. (See Graduate Education section of the Catalog for graduate programs.)

Undergraduate Degrees Offered

Bachelor of Science

- Early Childhood Education – Grades PK-3
- Elementary Education - Grades 1-5
- Elementary Education and Special Education Mild/Moderate –

Grades 1-5
- Health and Physical Education - Grades K-12
- Kinesiology and Health Promotion
- Middle School Education – Grades 4-8
- Secondary Education and Teaching – Grades 6-12

Bachelor of Arts

- Psychology

Minors Offered

The following minors* are offered in the College of Education:

- Health
- Exercise Science
- Psychology

A student must earn a grade of "**C**" or better in each course applied toward meeting the requirements of a minor or second content area.

Requirements for Admission, Retention, Transfer Credit, and Graduation

Admission and Retention in the College of Education

Students in the College of Education are subject to the scholastic standards of the University regarding probation, suspension, and readmission. Admission and retention for the College of Education is established and administered by the College of Education Admission and Retention Committee. Students desiring to enter the College of Education must file an application obtained from the College of Education Office of Certification and Professional Experience. Students applying must have at least a 2.0 grade point average on all college work earned.

Upon admission to the College of Education, each student will be assigned an advisor who will assist in planning a program of study. This advisor will be available for conferences during the academic year and must be consulted prior to each registration.

All students entering the College of Education in the non-teaching programs must follow the curriculum in effect at the time they are admitted to the College of Education. Teaching majors must follow the curriculum in place after admission to the specific program. Students enrolled in the College of Education who change their major must follow the curriculum in effect at the time of the change. Any student may choose to follow a newer curriculum as long as all requirements of the newer curriculum are fulfilled.

Students with a grade point average of less than 2.0 for 3 consecutive quarters will be dropped from the College of Education. Any student reentering the College of Education after being suspended for academic, attendance, or disciplinary reasons must meet all entrance requirements and reapply in writing to the Admission and Retention Committee. Appeal letters must be received in the office of the Certification and Professional Experience two weeks before the quarter begins.

NOTE: Admission to the College of Education does not ensure admission to a teaching program.

Admission to Teacher Education Programs

Students pursuing degrees in teacher preparation curricula must apply and meet all admission requirements prior to enrolling in specific teacher education classes.

After a student has earned or will have earned by the end of the current quarter a minimum of 46 semester hours of university credit toward a teacher education program, the student may apply for program admission. Application forms are available in the Office of Certification and Professional Experience. An application must be submitted one week prior to the end of the quarter in which the student is seeking admission. The student must provide evidence that the following requirements have been met:

- Applicant must have earned at least 46 semester hours of college or university credits which include the following courses or their equivalents: Education, Curriculum, & Instruction 125 and 210; English (9 semester hours), science (9 semester hours); mathematics (6 semester hours); and social studies (9 semester hours);. Applicant must have a minimum "**C**" average in each area.
- Applicant must have a grade point average of 2.2 on all hours attempted and an earned grade point average of 2.5, with a grade of at least "**C**" in Education, Curriculum, & Instruction 125, 210, and English 101, 102.
- Applicant must possess those physical, emotional, and mental characteristics necessary for effective classroom performance.
- Applicant must present satisfactory scores required in Louisiana on PRAXIS "I" (Reading, Writing, and Mathematics). Records indicating successful completion of these examinations must be presented at the time of admission (Act 836, 1984 Louisiana Legislature). An ACT composite score of 22 or greater or an SAT score of 1030 or greater for the verbal and math components combined is acceptable as a substitute for satisfactory PRAXIS I completion.
- Any student on academic or disciplinary probation or suspension is not eligible for admission to a Teacher Education Program.
- Any student seeking admission to a Teacher Education Program who has been convicted of a felony may be denied admission.
- All students admitted to the College of Education Teacher Education Programs must complete an electronic Professional Portfolio and teachers work sample on TaskStream that documents the acquisition of Program Outcomes (Knowledge, Skills, and Dispositions), Standards of the National Board for Professional Teaching Standards, and Interstate New Teacher Assessment and Support Consortium (INTASC) Model Standards by the designated time of the quarter in which they complete clinical practice.
- Newly admitted students are required to attend an orientation meeting (TBA at the beginning of each quarter) for the purpose of reviewing programmatic matriculation.
- Applicants may be asked to appear before the Admission and Retention Committee of the College of Education to explain or defend their applications, to present additional information, or to demonstrate ability in certain areas.
- Falsification of information reported to the College of Education may result in the student being dropped from the College of Education.
- Policy changes due to state mandates or decisions in the College of Education implemented during this academic year will be posted on the College of Education website and may become effective during the academic year.

Guidelines for Admission to Field Experiences and Practica

- Registration for field and clinical experiences is completed online within TaskStream immediately following registration for the course.
- Most professional courses require field and clinical experiences that will prepare the candidate for his or her own classroom in the future.
- All candidates are placed in public schools and organizations in Louisiana. These placements are approved by the Field and Clinical Experiences Committee and are assigned by the Director of Certification and Professional Experiences.
- Candidates are required to review the orientation process posted on the Office of Certification and Professional Experiences (OCPE) website at www.taskstream.com/main/?/ofce/home prior to beginning field or clinical experiences.
- While the majority of field and clinical activities are course-based, others are completed over an approximate two-year period. Examples include attendance at professional seminars, visits to schools during the opening and closing of an academic year, viewing/reflecting teaching videos and membership in professional organizations. Documentation of these activities occurs through specific assignments submitted in TaskStream. The Director of Certification and Professional Experiences will oversee these activities.

Guidelines for Admission to Student Teaching

All candidates for student teaching:

- Must be fully admitted to the Teacher Education Program of the College of Education.
- Must have achieved a 2.2 GPA on cumulative hours pursued and a 2.5 GPA on hours earned.
- Must be recommended for student teaching/internship by faculty advisor, practica clinical school and university faculty, and approved by the Field and Clinical Experiences Committee and the Director of Certification and Professional Experiences.
- Must have earned at least a **"C"** in all professional education or specialized academic education courses in both major and second content areas.
- Must have completed all required professional education courses.
- Must not schedule more than 3 semester hours in addition to student teaching. The course must not conflict with student teaching.
- Must have completed all required psychology courses.
- Must have completed all course work in major.
- Must first be approved for student teaching by the Field and Clinical Experiences Committee if he or she has a felony conviction record.
- Must have initiated required components of the electronic Professional Portfolio on TaskStream.
- Must have passed all required parts of PRAXIS prior to placement. Original scores must be submitted to the Office of Certification and Professional Experiences for verification of passing scores that meet Louisiana requirements for teacher certification.
- Must meet the College of Education Expected Outcomes (Knowledge, Skills, and Dispositions).
- Must accumulate a minimum of 180 approved and documented field experience hours in approved schools and organizations prior to placement.
- May be asked to appear before the Field and Clinical Experiences Committee to explain or defend their applications, to present additional information, or to demonstrate ability in certain areas.
- Are required to remain in the school of placement all-day (e.g. 7:30 a.m. - 3:00 p.m. minimum) for an entire quarter and participate in all activities that are required of the clinical school faculty member.
- Must be placed in one of 10 public school systems in north Louisiana. These include: Bienville, Bossier, Caddo, Claiborne, Jackson, Lincoln, Monroe City, Ouachita, Union, and Webster.
- Must apply online for student teaching during the early registration period of the quarter immediately preceding the student teaching. Failure to apply in a timely manner may result in a delay of placement and a delay of graduation.
- See other requirements - Office of Certification and Professional Experiences.
- Must drop student teaching if all requirements are not met.

Guidelines for Application for Teaching Certificate:

- Complete all requirements of the teacher education curriculum within the College of Education and receive the bachelor's degree.
- Candidates complete paperwork and submit state required fee for teaching certificate from the State Department of Education in the Office of Certification and Professional Experiences.

Guidelines for Calculating the Earned GPA for Certification:

- No credit earned in developmental (remedial) courses shall be included in calculating the earned GPA.
- The GPA shall be calculated based on all credits earned at this University and any other university attended, including courses taken more than once.
- No grade of less than "**C**" may transfer to any teaching program.

Transfer Credit

With some exceptions, the College of Education accepts for degree credit work, such as that taken by examination and at other institutions, in accordance with published policies of Louisiana Tech University as stated in the general information section of the University's Catalog. The final determination of degree credit in any College curriculum is, however, made by the Dean of the College. Transfer evaluations will reflect all grades earned at another institution, but only grades of "**C**" or above will be accepted for credit.

Graduation Requirements

All requirements listed in the General Information section of the Catalog apply. In addition, students completing a degree program leading to Louisiana Teacher Certification must:

- Make a grade no lower than "**C**" in all specialized academic courses and in all professional courses.
- Earn a cumulative grade point average of at least 2.2 and an earned grade point average of 2.5 (on a scale of 4.0).
- Successfully complete three semester hours of Fine Arts selected from the following: Art 290, Kinesiology 280, Music 290, or Theatre 290. Elementary majors are required to take Liberal Arts 336.
- Complete all required paperwork and pay the fee for certification to be submitted to the state. Original scores on all required parts of Praxis must be on file in the Office of Certification and Professional Experience.
- Students completing a non-teacher certification degree program must:
- Make a grade no lower than "**C**" in all specialized academic courses.
- Earn a cumulative grade point average of 2.0 (on a 4.0 scale).
- Courses numbered less than 100 will not apply toward degree requirements in any curriculum.

State certification requirements do not permit the substitution of credit for ROTC and band for health and physical education activity requirements. Health and physical education activity credit accepted by the University for Military Service can be applied to satisfy this requirement, except in cases where a specific activity is required in a curriculum.

Special Programs & Requirements

Induction Year Program (Quality Assurance)

The College of Education offers assistance to first-year teachers through an Induction Year Program. Each first year teacher from Louisiana Tech University who is employed in the region is offered assistance in conjunction with the local school system. Information is available in the Dean's office.

College Scholarships

The following scholarships are available in the College of Education. For information concerning these scholarships, contact the Office of the Associate Dean of Undergraduate Studies.

- Wilbur Bergeron Memorial Scholarship
- Enid Gladden Butler Scholarship (Graduate)
- Causey-Tanner Scholarship
- John Cawthon Scholarship (Teacher Preparation)
- College of Education General Scholarships
- Betty Edward-Owens Scholarship
- Lanette Southall Fisher Memorial Scholarship (Sophomore in Education)
- Lucille Pierce Folk Endowed Scholarship
- Morrelle and Trissielee Emmons Endowed Scholarship
- Gertie M. H. & Eldrice H. Green Scholarship
- Estelle Harris Memorial Scholarship (Elementary Education)
- Mary Ross Higginbotham Scholarship (Library Science, English, or Social Studies)
- Miriam Davis Hogan Endowment
- Alex Laney Endowment
- James and Janis Pierce Endowed Scholarship

- Pipes Memorial Scholarship (Mathematics or Science Education)
- Bessie Talbert Price Purdy Scholarship
- Evelyn Swihart Endowed Scholarship
- Mary Ann Smalling Scholarship and Kalil Scholarship (Library Science)
- Mary Wilson Scholarship (Elementary Education)
- Ann Marilyn Melton Memorial Endowed Scholarship (grades 4-8 or 6-12)
- Anna Claire Sisemore (Psychology, Female)
- Elizabeth Morris Odom Endowed Scholarship (Freshman in Elementary of Secondary Education)
- Louise Ewing Memorial Scholarship (Sophomore in Education)
- Lu Iman Allen and Ann McCraw Stokes Scholarship in Education (Bossier Parish Residents)
- Thomas Gaston and Hessie Gaston Watson Endowed Scholarship (Math or Science in Education Grades 4-12)
- Don and Ann Metz (Freshman)

Student Organizations

The college sponsors several student organizations that provide numerous opportunities for service, professional and leadership development, and social functions among student members and faculty. These organizations include the following:

- A+PEL-Associate Professional Educators of Louisiana
- ACEI-Association for Childhood Education International
- Kappa Delta Pi -National Honor Society in Education
- LAE-SP-Louisiana Association of Educators- Student Program
- National Council of Teacher of Mathematics (NCTM) - SP Student Program
- ESPE-Exercise Science and Physical Education
- Pi Lambda Theta-National Honor Society in Education
- Psi Chi-National Honor Society in Psychology
- Psychology Society
- Phi Epsilon

Bachelor Degree Programs

Department of Curriculum, Instruction, and Leadership

Undergraduate degree programs in the Department of Curriculum, Instruction, and Leadership include Early Childhood Education (PK-3), Elementary Education (1-5), Elementary Education and Special Education Mild/Moderate (1-5), Middle School Education (4-8), Secondary Education and Teaching (6-12), and Education Multiple Levels (K-12). The Middle School, Secondary, and Multiple Levels Education programs include multiple concentration choices.

Early Childhood Education – Grades PK-3 Curriculum (BS)

Freshman Year
English (GER)
English 101,102 6
Mathematics (GER)
Mathematics 101 3
Mathematics 112 or 125 or Statistics 200 3
Natural Sciences (GER)
Biological Sciences 101,102 6
Humanities (GER)
English 210, 211, or 212 3
History 201 3
Social/Behavioral Sciences (GER)
Political Science 201 3
Mathematics 203, 204 6
33

Sophomore Year
Computer Literacy (GER)
Education Curriculum and Instruction 210 3
Natural Sciences (GER)
Geology 111 or 112 3
Fine Arts (GER)
Liberal Arts 336 3
Humanities (GER)
English 332 or 336 3
Communication 110 or 377 3
Social/Behavioral Sciences (GER)
Geography 205 (IER) 3
Psychology 207 3
Education Curriculum and Instruction 125 3
Library Science 201 3
Family and Child Studies 331 3
30

Junior Year
Education Curriculum and Instruction 417, 420, 422, 423,424, 425, 431, 471 30
Family and Child Studies 301 3
33

Senior Year
Education Curriculum and Instruction 400, 416, 426, 434, 441, 442, 482 27
Kinesiology 440 3
30

Total Semester Hours 126
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

Elementary Education – Grades 1-5 Curriculum (BS)

Freshman Year
English (GER)
English 101,102 6
Mathematics (GER)
Mathematics 101 3
Mathematics 112 or 125 or Statistics 200 3
Natural Sciences (GER)
Biological Sciences 101,102 6
Humanities (GER)
English 210, 211, or 212 3
History 201 3
Social/Behavioral Sciences (GER)
Political Science 201 3
Education Curriculum and Instruction 125 3
30

Sophomore Year
Computer Literacy (GER)
Education Curriculum and Instruction 210 3
Natural Sciences (GER)
Geology 111 or 112 3
Humanities (GER)
History 202 3
Communication 110 or 377 3
Social/Behavioral Sciences (GER)
Psychology 207 3
Biological Sciences 201 3
English 332 or 336 3
Mathematics 203, 204 6
Physics 205 3
30

Junior Year
Fine Arts (GER)
Liberal Arts 336 3
Social/Behavioral Sciences (GER)
Geography 205 (IER) 3
Education Curriculum and Instruction 400, 421, 423, 424, 431, 438,471 21
Kinesiology 440 3
Library Science 201 3

33

Senior Year
Education Curriculum and Instruction 416,417,420, 420, 420, 422, 425, 426, 434.....33
33

Total Semester Hours.....126
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

Elementary Education and Special Education Mild/Moderate – Grades 1-5 Curriculum (BS)
Freshman Year
English (GER)
English 101,102.....6
Mathematics (GER)
Mathematics 101.....3
Mathematics 112 or 125 or Statistics 200.....3
Mathematics 203.....3
Natural Sciences (GER)
Biological Sciences 101,102.....6
Geology 111.....3
Humanities (GER)
History 201.....3
Communication 110 or 377.....3
Education Curriculum and Instruction 125.....3
33

Sophomore Year
Computer Literacy (GER)
Education Curriculum and Instruction 210.....3
Humanities (GER)
English 210, 211, or 212.....3
English 332 or 336.....3
Social/Behavioral Sciences (GER)
Geography 205 (IER).....3
Psychology 205, 207.....6
Biological Sciences 201.....3
History 202,360.....6
Mathematics 204.....3
Education Curriculum and Instruction 400.....3
33

Junior Year
Physics 205.....3
Education Curriculum and Instruction 420, 422, 423, 424, 425, 426, 431, 434, 484.....27
30

Senior Year
Fine Arts (GER)
Liberal Arts 336.....3
Education Curriculum and Instruction 417, 416, 420, 440, 471, 482, 473, 485.....30
33

Total Semester Hours.....129
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

Middle School Education – Grades 4-8 Curriculum (BS)

Louisiana Tech University offers the Bachelor of Science Middle School Education Grades 4-8 curriculum with two concentrations:

- Middle School Education -Grades 4-8 Mathematics.
- Middle School Education - Grades 4-8 Science.

To view the curriculum requirements for the BS Middle School Education - Grades 4-8, and course requirements for the concentrations, visit www.latech.edu/education/cil/undergraduate.

Secondary Education and Teaching – Grades 6-12 Curriculum (BS)

Louisiana Tech University offers the Bachelor of Science Secondary Education and Teaching - Grades 6-12 with the following concentrations:

- Agricultural Education
- Business Education
- English Education
- Family/Consumer Sciences Education
- Social Studies Education

To view the curriculum requirements for the BS Secondary Education and Teaching - Grades 6-12, and course requirements for the concentrations, visit www.latech.edu/education/cil/undergraduate.

Department of Kinesiology

The Department of Kinesiology provides degree programs in teacher education (Health & Physical Education) or exercise science (Kinesiology & Health Promotion). The Health & Physical Education degree program is for students seeking a teaching certification for K-12 health and physical education.

The Kinesiology & Health Promotion degree program is created for students interested in allied health, clinical exercise science, or fitness & wellness. The Clinical concentration prepares students seeking careers in physical therapy, occupational therapy, chiropractic, cardiac rehabilitation, and athletic training. The Health concentration prepares students seeking careers in health and the fitness industry, sports related areas, or massage therapy.

Health and Physical Education: Grades K-12 (BS)
Freshman Year
English (GER)
English 101, 102.....6
Humanities
History 102 (IER).....3
Mathematics (GER)
Mathematics 101 and 112 or 125.....3
Natural Sciences (GER)
Biological Sciences 224.....3
Kinesiology 113, 202, 290.....12
Social/Behavioral Sciences (GER)
Political Science 201 or Geography 205.....3
27

Sophomore Year
Humanities (GER)
English 210, 212.....6
Communication Studies 110 or 377.....3
Natural Sciences (GER)
Physics 205, 206 or Chemistry 100, 101, 102.....6
Psychology 205, 206, 207.....9
Kinesiology 203, 292.....6
Kinesiology 220 or 405.....2
32

Junior Year
Fine Arts (GER)
Kinesiology 280.....3
Education Curriculum and Instruction 403, 434, 471.....9
Kinesiology 333, 326.....6
Kinesiology 293, or 300.....3
Kinesiology 255, 256, 265, 316.....12
33

Senior Year
Education Curriculum and Instruction 401, 416.....10
Kinesiology 402, 408, 409, 414, 420, 440, 457.....19
29

Total Semester Hours.....121

Kinesiology and Health Promotion Curriculum (BS)
Freshman Year
English (GER)

English 101, 102 6
Fine Arts (GER) 3
Kinesiology 202, 256, and 255 or 265 3-9
Kinesiology 290, 292, or 300 (select two) 6
Mathematics (GER)
Mathematics 101 3
Health Information Management 103 3
Directed Electives* 3-8
30-32

Sophomore Year
Humanities (GER)
English 210, 211, or 212. 3
History 102 (IER) 3
Mathematics (GER)
Mathematics 112 or 125 3
Social/Behavioral Sciences (GER)
Psychology 102 3
Kinesiology 220 3
Directed Electives 15-18
29-30

Junior Year
Kinesiology 316, 326, 405, 406, 408, 409 12-15
Kinesiology 425 1
Humanities (GER)
English 303 3
Communication 110 or 377 3
Social/Behavioral Sciences (GER)
Other than Psychology 3
Directed Electives* 6-9
31

Senior Year
Kinesiology 407, 410, 333 or 414, 415, 416, 418, 420 21-24
Social/Behavioral Sciences (GER)
Psychology 300, 208, or 418 3-6
Counseling 400 3
27 - 30

Total Semester Hours
Health Fitness Concentration 120
Clinical Concentration 120
See plan of study for specific information.
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

No grade less than "**C**" is acceptable in English 101, 102, all Kinesiology major courses, Biological Sciences 224 or 225, and Communication 377. Varsity Athletics (KINE 114, 115, 116, 117) cannot be substituted for KINE activities.

*Directed Electives chosen by student in consultation with advisor from one of the following concentrations:

Clinical Concentration. Freshman Year: English (GER) 6 hrs; Arts (GER) 3 hrs; KINE 202-3 hrs; KINE Health-290, 292-6 hrs; Mathematics (GER)-Math 101-3 hrs; HIM 103-3 hrs; Directed Electives – 8 hrs; - Total 32 hrs. Sophomore Year: Humanities (GER) English 210, 211, or 212-3 hrs; History-3 hrs; Math 112- 3 hrs; Social Sciences (GER) Psychology 102-3 hrs; Directed Electives – 18 hrs – Total 30 hrs. Junior Year: KINE 326, 405, 406, 408, 409-12 hrs; KINE 425 -1 hr; Humanities (GER) English 303-3hrs; Communication 110 or 377-3hrs; Directed Electives-9hrs – Total 31 hrs. Senior Year: KINE 407, 410, 333 or 414, 415, 416, 418-21 hrs; Social Sciences (GER) Psychology 300, PSYC 208 or 418 -6 hrs; – Total 27 hrs.

Health Concentration. Freshman Year: English (GER)- 6 hrs; Arts (GER)- 3 hrs; KINE 202- 3 hrs, Activity; KINE 255 or 265, 256-6 hrs; KINE Health 290, 292, 300 (select two)-6 hrs; Mathematics (GER) Math 101-3 hrs; Directed Electives – 3 hrs – Total 30 hrs. Sophomore Year: Humanities (GER) English 210, 211 or 212-3 hrs; History-3 hrs; Math 125- 3 hrs; Social Sciences (GER) Psychology 102-3 hrs; KINE 220- 2hrs; Directed Electives – 15 hrs. – Total 29 hrs. Junior Year: KINE 316, 326, 405, 406. 408, 409-15 hrs; KINE 425 -1 hr; Humanities (GER) English 303-3 hrs; Communication 110 or 377-3 hrs.; Directed Electives-6 hrs - Total 31 hrs. Senior Year: KINE 407, 410, 333 or 414, 415, 416, 418, 420-24 hrs; Social Sciences (GER) Psychology 300-3hrs; Counseling 400-3 hrs - Total 30 hrs.

Requirements for Minor in Health or Exercise Science. A minor for non-majors includes the following:

Health: (23 hours) Kinesiology 220, 290, 292, and 406 (11hrs). choose 12 hours from the following, 6 of which must be at the 300- or 400- level: Kinesiology 202, 256, 293, 300, 316, 326, 333, 407, 408, 416, or 418. All courses applied toward the minor must be completed with a grade of "C" or higher.

Exercise Science: (25 hours) Kinesiology 202, 326, 333, 408, 409 (13 hours). Choose 12 hours from the following, 3 of which must be at the 300- or 400- level: Kinesiology 256, 290, 292, 293, 316, 406, 407, 414, 416, 418, 420. All courses applied toward the minor must be completed with a grade of "C" or higher.

Department of Psychology and Behavioral Sciences

The goals of the Department of Psychology and Behavioral Sciences include providing high quality education to every student, conducting research of the highest quality, and providing service to the university, local, state, and national communities.

The Department offers the BA in Psychology and an online BA in Organizational Leadership (Inter ULS) with a concentration in Project Team Leadership.

Psychology Curriculum (BA)

Freshman Year
English (GER)
English 101, 102 6
Mathematics (GER)
Mathematics 100 or 101 3
Mathematics 112, 125, or 240 3
Natural Sciences (GER)
Biological Sciences 130, 131 4
Social/Behavioral Sciences (GER)
Psychology 102, 202 6
Sociology 201 3
Electives 6
31

Sophomore Year
Humanities (GER)
English 210, or 211, or 212 3
History 102 (IER) 3
English 303 3
Natural Sciences (GER)
Biological Sciences 200 and 224 6
Psychology 300, 301, 304, 310 12
Electives 5
32

Junior Year
Fine Arts (GER) 3
Humanities (GER)
Communication 110 or 377 or English 363 3
Psychology 302, 315, and 320 9
Psychology electives* 6
Electives 9
30

Senior Year
Natural Sciences (GER)
Physical Science 3
Psychology 415, 418, and 321 or 465 9
English 336, or 460, or 461, or 464 3
Social Science elective 3
Electives 9
27

Exit Examination 0

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Selected from a 300- or 400-level PSYC or COUN course offering. An Undergraduate Thesis is an option.

Requirements for a Minor in Psychology

Twenty-one (21) hours of Psychology courses consisting of the following: Psych 102, 202, 300, two additional 300-level and two 400-level Psychology courses. Courses applied toward the minor must be completed with the grade of "**C**" or higher.

Chapter 13 – College of Engineering and Science

Administration

Dean
Hisham E. Hegab
Associate Dean, Undergraduate Studies
Vacant
Associate Dean, Graduate Studies
James D. Palmer
Executive Associate Dean, Research
Bala Ramachandran
Biomedical Engineering
Vacant, Director
Steven A. Jones, Program Chair
Chemical Engineering
Vacant, Director
Daniela Mainardi, Program Chair
Chemistry
Lee Sawyer, Director
Collin Wick, Program Chair
Civil Engineering
David Hall, Director
Jay Wang, Program Chair
Computer Science
Sumeet Dua, Director
Jean Gourd, Program Chair
Construction Engineering Technology
David Hall, Director
Norm Pumphrey, Program Chair
Cyber Engineering
Sumeet Dua, Director
Vacant, Program Chair
Electrical Engineering
Sumeet Dua, Director
Davis Harbour, Program Chair
Electrical Engineering Technology
Sumeet Dua, Director
Vacant, Program Chair
Industrial Engineering
Katie Evans, (Interim) Director
Jun-Ing Ker, Program Chair
Mathematics and Statistics
Katie Evans, (Interim) Director
Dave Meng, Program Chair
Mechanical Engineering
David Hall, Director
Henry Cardenas, Program Chair
Nanosystems Engineering
Lee Sawyer, Director
Sandra Zivanovic, Program Chair
Physics
Lee Sawyer, Director
Kathleen Johnston, Program Chair

Address

More information about the College of Engineering and Science can be obtained by writing:

College of Engineering and Science
P.O. Box 10348
Louisiana Tech University
Ruston, LA 71272
(318) 257-2842

and/or visiting coes.latech.edu

Purpose

The purpose of the College of Engineering and Science is building engineers and scientists for tomorrow.

Vision

We will be the best college in the world at integrating engineering and science in education and research.

Mission

- We provide a quality undergraduate and graduate education that responds to the needs and challenges of our ever-changing world, includes an international perspective, and stimulates social and ecological awareness.
- We promote the knowledge, skills, ethics, creativity and critical thinking necessary for professional competence and life-long learning.
- We conduct quality research throughout the college and world-class research in key focal areas.

Guiding Principles

- We consider the success of our students to be the primary standard for our success.
- We will provide an exciting environment that allows all students, faculty, and staff to attain their maximum potential.
- We will exhibit integrity, respect, and dignity in every aspect of our conduct.
- We will instill a spirit of pride, cooperation, and accountability in all that we do.
- We believe that teaching, research, and professional service are mutually supportive in the search for excellence.

History

Engineering education at Louisiana Tech University began in 1895 with a two year program in Mechanic Arts. In 1910 this program was expanded to a Bachelor of Industry degree in General Engineering. Four year engineering curricula developed as follows: 1921-BS in General Engineering; 1927-BS in Mechanical Electrical and BS in Civil Engineering; 1938-BS in Mechanical and separate BS in Electrical Engineering; 1940-BS in Chemical Engineering; 1948-BS in Petroleum Engineering; 1957-BS in Industrial Engineering; and 1972 BS in Biomedical Engineering.

Other BS degrees developed as follows: 1953-Geology; 1968-Construction Engineering Technology; 1968-Computer Science; and 1972-Electrical Engineering Technology.

In 1996 the School of Science, which included Mathematics, Chemistry, and Physics, was merged with the College of Engineering to form the College of Engineering and Science. In 2005, the University began offering a BS in Nanosystems Engineering (the first in the nation). In 2012, the BS in Cyber Engineering was established.

Accreditation

The Biomedical Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering and Nanosystems Engineering programs are accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The Computer Science program is accredited by the Computing Accreditation Commission of ABET www.abet.org. The Construction Engineering Technology and Electrical Engineering Technology programs are accredited by the Technology Accreditation Commission of ABET, www.abet.org. The Chemistry program is approved by the Committee on Professional Training of the American Chemical Society.

Undergraduate Degrees Offered

Bachelor of Science
- Chemistry
- Mathematics
- Physics

Bachelor of Science Biomedical Engineering
Bachelor of Science Chemical Engineering
Bachelor of Science Civil Engineering
Bachelor of Science Computer Science
Bachelor of Science Construction Engineering Technology
Bachelor of Science Cyber Engineering
Bachelor of Science Electrical Engineering
Bachelor of Science Electrical Engineering Technology
Bachelor of Science Industrial Engineering
Bachelor of Science Mechanical Engineering
Bachelor of Science Nanosystems Engineering

Dual Bachelor of Science Degrees with Grambling State University

Students at Louisiana Tech University and Grambling State University have the opportunity of simultaneously pursuing two Bachelor of Science degree programs, one at Tech and one at Grambling. Grambling's BS degree in Drafting Technology is coordinated with Tech's BS degree in Civil Engineering. Grambling's BS degree in Electronics Technology is coordinated with Tech's BS degree in Electrical Engineering.

Students who wish to enroll in either of these dual programs may do so by declaring their intentions when applying for admission. Transfer students are allowed to enter these programs at any registration at either of the universities.

To qualify for a BS degree at Grambling and a BS degree at Tech, a student must complete all courses required by the Department of Industrial Education at Grambling and the courses required by the appropriate engineering department at Tech. Courses that are common to both degree programs and that are offered at both universities may be taken at either university.

Minors Offered

Students may earn minors in one of the following discipline specific areas:
- Actuarial Science
- Biomedical Engineering
- Chemical Engineering
- Chemistry
- Civil Engineering
- Computer Science
- Electrical Engineering
- Industrial Engineering
- Mathematics
- Mechanical Engineering
- Physics

A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Multidisciplinary Minor in Energy Engineering

A multidisciplinary minor in Energy Engineering is also available. Students pursuing this minor may choose 21 hours from an assortment of College of Engineering and Science courses such as CHEM 420: Chemical Thermodynamics, CMEN 415: Theory and Practice of Radiation Protection and Shielding, ELEN 481: Power Systems, MEEN 431: Energy Conversion Systems, MEEN 435: Internal Combustion Engines, PHYS 424: Quantum Physics, or other similar courses consistent with the student's career objectives and approved by the student's major program chair. At least 12 hours of these courses must be at the 300- and 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Multidisciplinary Minor in Data Center Engineering

The minor in Data Center Engineering is a multidisciplinary minor requiring 26 semester hours. This minor prepares students to work with the specific needs and challenges in the complex environments of modern data centers in government, industry, and academia. This minor requires 9 semester hours of courses in thermal systems engineering, 6 semester hours in power engineering, 8 semester hours in IT systems or computer networks, and 3 semester hours in a project experience. In each of these disciplines students may choose from the following selection of courses:
- Thermal Systems (9 hours): ENGR 222; and MEEN 332 or CMEN 332; and MEMT 313 or CMEN 213.
- Power Engineering (6 hours): ELET 280 or ELEN 481; and ELET 360 or ELEN 381.
- IT Systems/Computer Networks (8 hours): ITEC 460 or ITEC 220 or CSC 220; and ITEC 440 or ITEC 420 or CSC 403 or CYEN 481 or ITEC 410; and CIS 444 or ELET 460 or CSC 450
- Project Experience (3 hours): any engineering senior design sequence or CSC 404.
- A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Admissions

Students who meet the University admissions criteria will be admitted to the College of Engineering and Science.

Transfer Students

Candidates for admission to the College of Engineering and Science who have studied at another institution of higher education must submit an official record of that study to Louisiana Tech University. This record will be evaluated by the program in which the candidate wishes to major. The evaluation will determine which curricular requirements of the intended program of study at Louisiana Tech have been satisfied by the student's prior study. Students must have an overall grade point average of at least 2.0 out of 4.0 in all courses for which transfer credit is allowed.

Scholastic Requirements

Students in the College of Engineering and Science are subject to the scholastic standards of the University regarding probation, suspension, and readmission. Program chairs may require workload restrictions intended to restore the quality of the student's work to the standards required by the College of Engineering and Science.

Students in the College of Engineering and Science must earn a grade of "**C**" or better in any math course; any statistics course; ENGR 120, 121, 122; CHEM 100, 101, 103; and PHYS 201 prior to taking courses for which these are prerequisites.

Students on scholastic probation and those returning from a period of suspension are limited to a maximum of 9 semester hours per quarter.

Cumulative Mathematics Grade Point Average (GPA) Policy

The mathematics for engineering and science classes (MATH 240-245) are fundamental for every engineering program. Success in these classes tends to predict success in later engineering classes. For this reason, each engineering program has identified at least one upper level class for which a cumulative MATH 240 series GPA of 2.0 is a prerequisite.

Some requisite classes only require the GPA to include grades through MATH 242, while some include grades through MATH 245. Regardless, the cumulative GPA includes *all attempts*, including hours that were transferred to Louisiana Tech as credit for any of the MATH 240 series classes. Grades in earlier mathematics classes (e.g., MATH 101, 112) are not included in this GPA.

If a student does not meet the cumulative mathematics GPA requirement for a certain class, he/she must retake one or more of the MATH 240 series classes until his/her cumulative mathematics GPA

reaches a 2.0. The classes retaken cannot be ones in which the student made an A or B in a previous quarter, ensuring that students obtain review where they need it most. To retake an earlier mathematics class and discuss a plan for improvement, students should contact the Undergraduate Studies office in the College of Engineering and Science.

The purpose of this policy is to further improve the preparation of students who enter upper level engineering classes, which will improve their performance in these advanced classes. Not only will this policy influence the quality of current students, but it will also produce better graduates who are prepared to enter the workforce as qualified engineers.

Electives

All electives must be approved by the appropriate program chair.

Credit by Examination

Students of exceptional scholastic achievement are allowed to take subject credit examinations in some of the courses required for a degree. A student in the College of Engineering and Science may earn up to a maximum of 30 semester hours by credit examination. Consult with the staff members in the office of the Associate Dean for Undergraduate Studies, College of Engineering and Science, before registering or paying for any type of credit exam.

Correspondence Courses

Students in the College of Engineering and Science are permitted to include no more than six semester credit hours of correspondence courses for credit toward graduation in any curriculum. Prior to pursuing the correspondence work, the student must obtain written approval of the Associate Dean for Undergraduate Studies of the College of Engineering and Science.

Graduation Requirements

All requirements listed in the General Information section of this Catalog apply. In addition, a student majoring in a program in the College of Engineering and Science must have at least a 2.0 grade point average in courses bearing the specific rubric of the major program (e.g., computer science, civil engineering). In order to graduate from a baccalaureate program in the College of Engineering and Science, a student must complete 27 of the last 36 hours in the curriculum while enrolled in the College of Engineering and Science.

Ethical Standards

Students in the College of Engineering and Science are preparing to enter a profession which demands high ethical standards of its members. Honesty and high ethical standards are demanded of these students and all others taking courses conducted in the College of Engineering and Science. It is the student's right and responsibility to discourage and report academic misconduct. The failure to do so is a breach of ethical standards.

Academic misconduct is a serious breach of ethics in academic activities, such as examinations, reports, and homework. It may occur in any of the following forms:

1. Giving or receiving unauthorized aid;
2. Stealing or plagiarizing the substance, work, or ideas of others;
3. Lying, using evasive statements, or concealing the truth behind technicalities.
4. Student written computer programs and data are not to be shared with other students without the specific authorization of the responsible faculty. Students are responsible for protecting their disks from unauthorized access.

The determination of academic misconduct will be made in accordance with the University's "Academic Misconduct" section of this Catalog.

Repeated occurrences of academic misconduct are specifically contrary to the standards of personal integrity required by the professions connected with the programs in the College of Engineering and Science. Therefore, a stronger penalty may be awarded for repeated commissions of academic misconduct, including dismissal from the College of Engineering and Science.

Undergraduate Research Opportunities

Academically qualified undergraduate students have an opportunity to gain experience on campus by working part time as a member of a research team including faculty and graduate students. Compensation is competitive with most local employment and entails the major advantage of providing on campus stimulating work experience to enrich the student's total educational experience. The qualifications required for participating include the following:

1. Students must be enrolled in a degree program in the College of Engineering and Science, and must be in good academic standing.
2. Students must have an overall grade point average of 3.0 or better.

Students are selected by the faculty responsible for the various research projects offering the employment. Applicants will be considered for suitable employment on research projects throughout the college regardless of the department in which they are enrolled.

Student Organizations

The following national organizations have student chapters on campus:

- American Chemical Society
- American Institute of Chemical Engineers
- American Society of Civil Engineers
- American Society of Heating, Refrigerating, and Air-Conditioning Engineers
- American Society of Mechanical Engineers
- Association for Computing Machinery
- Associated General Contractors of America
- Association of Business, Engineering, and Science Entrepreneurs
- Biomedical Engineering Society
- Engineering and Science Association
- Engineers Without Borders
- Institute of Electrical and Electronics Engineers
- Institute of Industrial Engineers
- National Society of Black Engineers
- North American Society for Trenchless Technology
- Society of Automotive Engineers
- Society of Physics Students
- Society of Women Engineers

Student Honor Societies

The following honor societies are available to those students who excel academically and are elected to membership:

- All Engineering: Tau Beta Pi
- Biomedical Engineering: Alpha Eta Mu Beta
- Chemical Engineering: Omega Chi Epsilon
- Chemistry: Phi Lambda Upsilon
- Civil Engineering: Chi Epsilon
- Computer Science: Upsilon Pi Epsilon
- Electrical Engineering: Eta Kappa Nu
- Industrial Engineering: Alpha Pi Mu
- Mathematics: Pi Mu Epsilon
- Mechanical Engineering: Pi Tau Sigma
- Physics: Sigma Pi Sigma

Engineering and Science Scholarships

The following scholarships are administered by the College of Engineering and Science and its individual programs. All scholarships are dependent on availability of funding and subject to cancellation or modification by the sponsor.

- Albert J., Jerri H. & David S. Dunn Endowed Scholarship
- American Petroleum Institute Scholarship
- Associated General Contractors of America Scholarships (Civil)

- Ben F. Freasier Memorial Scholarship (Chemistry)
- Ben T. Bogard Scholarship
- Birdie Carroll and Jewel Roberts
- Brooks Endowed Engineering Scholarship
- Bruce Tucker Memorial Scholarship (Civil Technology)
- Buford Echols Gatewood Scholarship (Mechanical)
- Butros Aukar Memorial Scholarship (Mechanical)
- C. C. Whittelsey Scholarship
- C. J. Williams Endowed Scholarship
- Calvin Watts Scholarship (Civil)
- Cengiz Topakoglu Outstanding Biomedical Engineering Student Scholarship
- Charles and Nelwyn Spruell Endowed Professorship and Scholarship
- Charles G. Tullis Scholarship
- Charlie Earl Scholarship (Mechanical)
- Chemical Engineering Scholarships
- Chesapeake Energy Corporation Scholarship
- Chevron Scholarships (Chemical, Electrical, Mechanical)
- Chip & Carolyn Woodard Endowed Scholarship
- Citgo Petroleum Chemical Engineering Scholarship
- Civil Engineering Faculty Scholarship
- Civil Engineering Scholarship
- Computer Science Scholarship
- Copolymer Rubber and Chemical Scholarship (Chemical)
- David E. Hogan Endowed Scholarship
- David Michael Baker Scholarship (Chemical)
- Don & Ann Metz Endowed Scholarship in Engineering
- Donald Ruffin Endowed Scholarship
- Dr. and Mrs. P. K. Smith, Sr. Endowed Scholarship Fund (Mathematics)
- Dr. Walter E. Koss Mathematics Scholarship
- Eastman Scholarships
- Edward C. Darling Endowed Memorial Scholarship (Civil)
- Electrical Engineering Scholarship
- Folk Civil Engineering Scholarship
- Frank Bogard Scholarship
- Gorman Memorial Endowed Scholarship
- H. E. Ruff Physics Scholarship
- Harrell R. and Lenore S. Smith Scholarship
- Harry J. Gaston, Jr. Memorial Endowed Scholarship
- Harry Talbot Scholarship
- Henry E. and Margaret A. Stamm Scholarship
- Hilburn Memorial Endowed Scholarship
- J. L. Orr Scholarship (Chemical)
- J. R. Harrelson Memorial Engineering Scholarship
- Jack A. Terrill Memorial Scholarship (Civil)
- Jack T. Painter Scholarship (Civil)
- Jack Thigpen Scholarships (Mechanical)
- Jacques Robinson Endowed Scholarship
- James Pickens Ford Endowed Scholarship
- Jeffrey N. Beasley Scholarship
- Jeneanne Krause Memorial Scholarship (Civil)
- Jerry R. Sawyer Mathematics Scholarship
- Jerry W. and Marianna Box Scholarship
- Joeleene McBride Endowed Scholarship
- John R. Horton Scholarship (Mechanical)
- Johnny Roland Memorial Scholarship (Biomedical)
- Kaiser Aluminum Company Scholarships (Chemical, Mechanical)
- Leonard Cooper Long III Endowed Scholarship
- Mark David Hill Scholarship (Mechanical)
- Maryanne Scogin Memorial Scholarship (Chemical, Mechanical)
- Mattie Black Gaston Memorial Endowed Scholarship
- McDermott Incorporated Scholarships (Civil)
- Mechanical Engineering/Industrial Engineering Scholarship
- Mendal Heller Memorial Scholarship (Mechanical)
- Mercedes Benz Scholarship (Mechanical)
- Mike Thompson Memorial Endowed Scholarship
- O. W. Hogan, Jr. Engineering Endowment
- Oliver Woodrow Fisher Memorial Scholarships (Civil, Electrical, Mechanical)
- Patricia Ann Bell Henley Endowed Scholarship
- Phil Israel Engineering Scholarship
- Pipes Foundation Scholarship
- PRAESES, LLC Scholarship
- R. A. McFarland Memorial Scholarship (Civil)
- Raymond Bailey Endowed Scholarship (Chemical)
- Rentrop & Stroud Endowed Scholarship
- Richard H. Byrd Scholarship
- Riverwood Scholarship (Chemical)
- Robert E. McFadden Endowed Scholarship
- Robert V. Byrd Scholarship
- Ronald E. Cannon Endowed Scholarship
- Rose T. and Roy E. Hogan Endowed Scholarship
- Roy T. Sessums Memorial Scholarships (Civil, Electrical, Mechanical)
- Roy Wayne Vining – Dow Chemical Company Memorial Scholarship (Chemical)
- Samuel McCain Young Memorial Scholarship (Civil)
- Tau Beta Pi Outstanding Freshman Scholarship
- Tech's Best Scholarship
- Terrill and Henry Families Scholarship
- The William Ardis Marbury, Sr. Scholarship in Biomedical Engineering
- Thomas E. Landrum Memorial Scholarship (Biomedical)
- Thomas Harper Goodgame Scholarship
- Thomas J. and Elizabeth B. Wilson Scholarship
- Timothy L. Petrus Endowed Scholarship
- Tom & Amy Hazelwood Industrial Engineering Scholarship (Industrial)
- Tommy J. Folk, Sr. Construction Student Award
- Underground Telecommunications Damage Prevention Scholarship
- Whetstone Scholarships (Mechanical)
- William & Sue Calgreen Engineering Scholarship
- William C. Thurmon Endowed Scholarship

Bachelor Degree Programs

Biomedical Engineering

Biomedical engineering is the application of engineering skills, principles, and tools to problems in biology and medicine. The undergraduate program at Louisiana Tech University combines the practical aspects of engineering with biology and medicine to produce an engineer capable of solving special kinds of problems. Biomedical engineers are alert and sensitive to the challenges of designing and using products for living systems and of studying these systems. The program provides medical and biological instruction in typical premedical courses (e.g., general biology, anatomy, physiology, organic chemistry) and engineering instruction in fundamental engineering courses. The biological training is integrated with the engineering training by means of a series of coordinated biomedical engineering courses taught at the sophomore, junior, and senior academic levels. In order to obtain depth and focus in technical abilities, students select one of the following concentrations: chemical engineering, electrical engineering, mechanical engineering, computer information, microsystems, or pre-medicine.

Internships are available in both clinical and industrial environments. Interns experience breadth of interactions, procedures, and technology, and they complete significant engineering projects.

Biomedical engineers work in many rewarding areas: for example, design and construction of artificial internal organs; design and application of the electronics and instrumentation associated with hospital operating rooms, intensive care units, and automated clinical labora-

tories; development and instrumentation of biomedical computer systems; functional rehabilitation of disabled persons through appropriate application and development of technology; clinical engineering; biomedical device field engineer; aerospace medicine and life science; basic research using engineering analysis principles aimed at understanding the basic mechanisms that regulate the human body. Employment opportunities for biomedical engineers exist in hospitals, rehabilitation engineering centers, national research foundations, governmental research institutions and agencies (e.g., NASA and FDA), companies in the fields of chemical products, pharmaceutical, hospital products, medical instrumentation and computers, orthopedic implants, and aerospace life science companies. Also, entrepreneurial activity in the health-related industries is prospering. Innovative medical and health care products can be manufactured and marketed by resourceful biomedical engineers. In industry, Louisiana Tech biomedical engineering graduates are responsible for manufacturing, quality control, research and development, management, and marketing.

Upon or before graduation, students may complete the basic requirements necessary for admission to medical school. The program provides a strong quantitative background for graduates who wish to pursue a future medical career. Each graduate will also be adequately prepared to continue his/her education at the graduate level by pursuing a Master of Science and/or the Doctor of Philosophy degree in Biomedical Engineering. Continued professional education in business, law, and the basic medical sciences is also possible.

Biomedical Engineering Program Educational Objectives

- BIENP01 (Career Preparation): Graduates of the program will find employment as biomedical engineers or be admitted for continued study in engineering, science, business, medicine, or other professional programs.
- BIENP02 (Skills): Graduates will apply the skills obtained from the program to biomedical or other multidisciplinary fields.
- BIENP03 (Professionalism): Graduates of the program will communicate effectively, undertake professional responsibilities, and function effectively as members and leaders of multi-disciplinary teams.
- BIENP04 (Life-Long Learning): Graduates of the program will continue to develop their knowledge and skills throughout their careers.

The Biomedical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.

Biomedical Engineering Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Chemistry 101, 102, 103, 104 6
English (GER) 6
Mathematics (GER)
Mathematics 241, 242, 243 9
Engineering 120, 121, 122 6
Biomedical Engineering 202 1
Physics 201 3
31

Sophomore Year
Biological Sciences 225, 227 6
Biomedical Engineering 203, 230 4
Engineering 220, 221, 222 9
Mathematics 244, 245 6
Statistics 405 3
Mechanics and Materials 201 2
Mechanical Engineering 215 1
31

Junior Year
Humanities (GER)
English 210, 211, or 212, and 303 6
Communication 377 3
Biomedical Engineering 225, 301, 321 325, 401, 425 16
Biological Sciences 315 3
Physics 202 3
Directed Electives* 5
36

Senior Year
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 6
Humanities (GER)
History 3
Biomedical Engineering 400, 402, 403, 404, 430, 435 12
Directed Electives* 6
30

Total Semester Hours 128
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

The Biomedical Engineering Program requires students to have a "C" or better in any course that is a prerequisite for other courses in the College of Engineering and Science that are part of the student's degree requirements.

*Directed Electives chosen by students in consultation with faculty advisor from one of the following concentrations:

Pre-Medical:** Chemistry 250, 251, 252, 253, 254; 3 hours in engineering, or science at the 300-level, with approval of advisor.

Chemical Engineering: Chemical Engineering 202, 332, 402, and one 2 hr. Chemical Engineering*** course at 300- or 400-level.

Computer Information: CSC 120, 122, 220, 2 hours taken from CSC, ELEN or BIEN (with computer content) with approval of advisor***.

Electrical Engineering: Electrical Engineering 232, 242, 311, 335, one 1 hr. Electrical Engineering*** course at the 300- or 400-level.

Mechanical Engineering: Mechanics and Materials 203 and 211, and six additional semester hours of Mechanical Engineering *** courses at 300- or 400-level.

Microsystems Engineering: Nanosystems Engineering 201, Microsystems Engineering 401 and 402, and three additional semester hours in Nanosystems Engineering or Microsystems Engineering at the 300- or 400-level.

**Students who wish to apply to medical school should be aware that they may need additional Biological Sciences coursework to meet medical school entrance requirements. Some required courses depend on the medical school to which the student is applying.

***An approved Biomedical Engineering course appropriate to this track may be substituted with consent of the student's advisor.

Requirements for a Minor in Biomedical Engineering

A minor in Biomedical Engineering consists of 21 credit hours of Biomedical Engineering (BIEN) courses approved by the Biomedical Engineering Program Chair. At least 12 hours of these courses must be at the 300- or 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Chemical Engineering

The primary task of chemical engineers is the design of industrial processes that chemically transform various natural resources into more useful and valuable products. These products range from paper and gasoline to medicines and computer microchips. The chemical engineer is constantly concerned with improving these processes to best conserve resources (including capital) while preserving and protecting the environment along with the health and wellbeing of the public.

The education of the chemical engineer covers advanced chemistry, physics, biology, mathematics, general engineering, computer applications, material balances, energy balances, chemical equilibria, thermodynamics, kinetics and reactor design, unit operations and transport processes, and process control, with laboratories emphasizing these areas along with oral and written communication skills.

Graduates in chemical engineering are particularly versatile. Industrial work may involve the production, operations, customer service,

sales, or research departments of industries producing semiconductors, microchips, metals, paper, petroleum, petrochemicals, plastics, forest products, pharmaceuticals, or foods or the technical service or process improvement sections of such industries. In addition, chemical engineers are increasingly in demand in emerging fields such as nanosystems engineering and nanotechnology. Meaningful careers are also available with governmental agencies or private foundations associated with space, energy, and the environment. Graduate education in medical school, dental school, business school, law school, and chemical engineering are viable alternatives. At the undergraduate level, the purpose of the program is to provide a strong basic education such that the graduate will be prepared for all these options.

Chemical Engineering Program Educational Objective

- Alumni, 3-5 years beyond graduation, are engaged in the practice of chemical engineering primarily within the chemical, petrochemical, and paper and pulp industries and/or advance study.

The Chemical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. Graduates of this program are encouraged to become registered professional engineers.

Chemical Engineering Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Chemistry 101, 102, 103, 104 6
Biological Sciences 130 3
English (GER)
English 101, 102 6
Mathematics (GER)
Mathematics 241, 242 6
Engineering 120, 121, 122 6
27

Sophomore Year
Humanities (GER)
English 303 3
Engineering 221, 222 6
Chemical Engineering 202, 213, 301 7
Chemistry 250, 251, 252, 253 7
Mathematics 243, 244, 245 9
Physics 201 3
35

Junior Year
Humanities (GER)
English 210, 211, or 212 3
Social/Behavioral Sciences (GER) 3
Chemical Engineering 304, 313, 332, 354, 413, 425 17
Chemistry 311, 313 4
Engineering 220 3
Directed Technical Elective* 3
33

Senior Year
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 6
Chemical Engineering 402, 407, 431, 432, 434, 453 15
Humanities (GER)
Communication 377 or English 363 3
History(IER) 3
Directed Technical Elective* 3
33

Total Semester Hours 128
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

The Chemical Engineering Program requires a "**C**" or better in all Chemical Engineering classes and any course in the College of Engineering and Science prior to taking courses for which these are prerequisites.

*Directed Electives chosen by student in consultation with faculty advisor from courses offered in the College of Engineering and Sciences or the College of Applied and Natural Sciences. All electives must be approved by the Chemical Engineering Program Chair. Directed Electives require a "C" or better grade.

Dual Degree in Chemical Engineering and Chemistry

If your primary degree program is in Chemical Engineering, the following changes to the Chemistry curriculum will allow you to obtain dual degrees in Chemical Engineering and in Chemistry.

In addition to the classes required for the Chemical Engineering degree, you must take the following classes:

- Physics 202, 261, and 262
- Chemistry 205, 254, 281, 312, 314, 351, 390, 466, 481, and 490
- An additional 3-credit advanced (300-level or higher chemistry elective
- A minimum of 30 semester hours are required in addition to the requirements for the Chemical Engineering degree.

Students interested in pursuing a dual degree program in Chemical Engineering and Chemistry should contact the Chemistry Program Chair for a curriculum review and detailed requirements about the program.

Requirements for a Minor in Chemical Engineering

A minor in Chemical Engineering consists of 21 credit hours of Chemical Engineering (CMEN) courses approved by the Chemical Engineering Program Chair. At least 12 hours of these courses must be at the 300- or 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Chemistry

The chemistry curriculum offers a broad background in chemistry and results in a degree which is approved by the American Chemical Society. Students who complete the curriculum without substitutions are eligible for Certification to the ACS. A grade of "**C**" or better is required for all Chemistry courses. Students entering this program generally plan to pursue a career as an industrial chemist or to attend graduate school with a specialty in one of the major areas of chemistry (analytical, inorganic, organic, or physical).

Students who are interested in pre-medicine, pre-dentistry or biochemistry may make the following substitutions and still be ACS certified:

Physics 209, 210 for Physics 201, 202; Humanities elective for English 303; Biological Sciences 131, 132, 133, 260, and 310 for Math 244, 245, and six semester hours of technical elective; Biological Sciences 315 or 422 for Chemistry 481; Chemistry 352, 353, 354, and one semester hour of science elective for Chemistry 409 or 420 or 424 or 450C (any two).

Chemistry Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 130 3
Chemistry 100, 101, 102, 103, 104 8
English (GER) 6
Mathematics (GER)
Mathematics 240, 241 6
Mathematics 242 3
Social Science (GER) 6
32

Sophomore Year
Chemistry 205, 250, 251, 252, 253, 254, 281 15
Mathematics 243 3
Natural Sciences (GER)
Physics 201, 202, 261, 262 8
Fine Arts (GER) 3
29

Junior Year
Chemistry 311, 312, 313, 314, 351, 390 12

Humanities (GER)
English 210, 211, or 212, and 303 6
Mathematics 244, 245 6
Technical Electives* 6
30

Senior Year
Chemistry 466, 481** 7
Chemistry 409 or 420 or 424 or 450C** (any two) 6
Chemistry 498*** 3
Chemistry 490**** 1
Humanities (GER)
History 3
Communication 110 or 377 3
Social/Behavioral Sciences (GER) 3
Electives 3
29

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Technical electives must be selected in consultation with a faculty advisor. MATH 308 is recommended.
**The ACS certified BS requires twelve hours of 400-level in-depth classes. If CHEM 498 is used as a 400-level class for ACS certification, a written report that meets ACS standards for undergraduate research is required.
***Each senior student must conduct an undergraduate research Capstone Project which demonstrates integration and synthesis of chemistry skills. The duration of the Capstone Project must be two or more quarters.
****Each senior student must submit a Career Portfolio that documents major aspects of chemistry training and experience.

Requirements for a Minor in Chemistry

A minor in chemistry consists of Chemistry 250, 251, 252, 253, and 254 and eleven additional hours of chemistry, of which eight must be 300 - or 400-level.

Dual Degree in Chemical Engineering and Chemistry

If your primary degree program is in Chemical Engineering, the following changes to the Chemistry curriculum will allow you to obtain dual degrees in Chemical Engineering and in Chemistry.

In addition to the classes required for the Chemical Engineering degree, you must take the following classes:

- Physics 202, 261 and 262
- Chemistry 205, 254, 281, 312, 314, 351, 390, 466, 481 and 490
- An additional 3-credit advanced (300-level or higher chemistry elective
- A minimum of 30 semester hours are required in addition to the requirements for the Chemical Engineering degree
- Students interested in pursuing a dual degree program in Chemical Engineering and Chemistry should contact the Chemistry Program Chair for a curriculum review and detailed requirements about the program.

Civil Engineering

Civil engineers are in the forefront providing constructive counsel on matters vital to mankind and the environment. Civil engineers are primarily responsible for planning, designing, and constructing all the world's constructed facilities. Most people can only talk about solving traffic congestion, environmental pollution, droughts, and floods. Civil engineers help to eliminate or greatly reduce the destructive effects of these events.

Accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, the curriculum in civil engineering is designed to produce graduates who have the background necessary for the practice of civil engineering and the capacity for further development of mind and character to assume the highest responsibilities of citizenship and of professional engineering.

The up-to-date curriculum provides the fundamentals of engineering and teaches the application of those fundamentals in engineering analysis and design. It also helps the student acquire the ability to communicate, to develop a personal value system, and to have a sense of social responsibility and concern for the needs and welfare of mankind and the environment. Well-equipped laboratories for environmental engineering, hydraulics, materials testing, soil mechanics, structural testing, surveying, and transportation enhance the classroom lectures.

The student will gain some competence in all of the following areas with emphasis on at least one: structural design, environmental engineering, hydraulics, hydrology, surveying, transportation, soil mechanics, highways, and materials.

Civil Engineering Program Educational Objectives

Within 4 to 6 years of graduation, Civil Engineering graduates from Louisiana Tech University are expected to have:

- Engaged in professional practices, such as construction, environmental, geotechnical, structural, transportation, or water resources engineering by using technical communication and management skills.
- Overseen the design and/or construction of a civil engineering project.
- Demonstrated a commitment to continuing professional development by pursuing formal education in an advanced degree or by maintaining technical currency through documented CPD activities.
- Served in a leadership position in any professional or community organization, or local/state engineering board.
- The Civil Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. Graduates of this program are encouraged to become registered professional engineers.

Civil Engineering Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Chemistry 101*, 103 3
Physics 201* 3
English (GER) 6
Humanities (GER)
History 3
Mathematics (GER)
Mathematics 241*, 242* 6
Mathematics 243* 3
Engineering 120*, 121*, 122* 6
30

Sophomore Year
Humanities (GER)
English 303, 363 6
Civil Engineering 202, 254 4
Engineering 220*, 221, 222 9
Mathematics 244*, 245 6
Mechanics and Materials 201, 211* 4
Chemistry 102*, 104 3
32

Junior Year
Natural Sciences (GER)
Biological Sciences 3
Geology 3
Civil Engineering 310, 314, 324, 332, 333, 340, 342, 343 23
Mechanics and Materials 203, 313* 6
35

Senior Year
Fine Arts (GER) 3
Humanities (GER)
English 210, 211, or 212 3
Social/Behavioral Sciences (GER) 9

Civil Engineering 325, 392, 460, 492, 493, 494 10
Directed Electives** 6
31

Total Semester Hours 128
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

*Grade of "**C**" or higher required.

**Directed Electives chosen by student in consultation with faculty advisor and approved by the Civil Engineering Program Chair.

Requirements for a Minor in Civil Engineering

A minor in Civil Engineering consists of 21 credit hours of Civil Engineering (CVEN) and/or Mechanics and Materials (MEMT) courses approved by the Civil Engineering Program Chair. At least 12 hours of these courses must be at the 300- or 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Construction Engineering Technology

The program prepares the graduate for the responsibilities of managing and supervising all of the activities related to converting the plans and specifications prepared by engineers and architects into finished facilities. With increasing demand for economical service and continuous quality improvement, the construction industry continues to improve its technology as well as its management efficiency.

The program provides technical and managerial education in that field of construction most closely aligned with engineering, with a particular emphasis on highway, heavy, and underground construction. It is in many ways similar to civil engineering but has the following major differences:

- Emphasis is on practical application of engineering science rather than upon the comprehensive understanding of the scientific theories.
- Considerable time is devoted to management and business administration courses.
- Less time is devoted to mathematics and the sciences.

Graduates of this program are qualified to fill many professional positions in governmental agencies, industrial concerns, manufacturing companies of construction supplies and equipment, and in construction firms. These jobs may involve contract supervision, intermediate managerial responsibilities, inspection or sales, as well as the supervised design of construction projects. The undergraduate business and management training prepares graduates to move up the executive ladder to success.

The Construction Engineering Technology Program is accredited by the Technology Accreditation Commission of ABET, www.abet.org.

Construction Engineering Technology Program Educational Objectives

Graduates of the Construction Engineering Technology Program are expected within a few years of graduation to:

- Be employed in the heavy and highway construction, underground utility, and building structural frame segments of the construction industry and will successfully apply construction principles to their chosen fields.
- Be advancing in their careers based on strengths in construction technical knowledge, communication skills, awareness of professional, ethical and societal responsibilities, and a dedication to life-long learning.

Construction Engineering Technology Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 101 3
Physics 209 3
English (GER) 6
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 3
Mathematics (GER)
Mathematics 101, 112 6
Statistics 200 3
Civil Engineering 254 3
Civil Technology 100 3
33

Sophomore Year
Humanities (GER)
English 303 3
Natural Sciences (GER)
Chemistry 120, 122 4
Physics 261 1
Social/Behavioral Sciences (GER)
Economics 215 3
Business Law 255 3
Mathematics 220 3
Mechanics and Materials 206 3
Civil Engineering 357 2
Civil Technology 210 3
Industrial Engineering 300 2
27

Junior Year
Humanities (GER)
English 210, 211, or 212 3
History (IER) 3
Communication 377 3
Social/Behavioral Sciences (GER) 3
Accounting 201 3
Management 310 3
Civil Engineering 442 3
Civil Technology 372, 373, 471 9
30

Senior Year
Business or Management Course 3
Civil Engineering 435, 436, 437, 438 12
Civil Technology 473, 475, 493 9
Directed Electives* 6
30

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

*Directed Electives chosen by student in consultation with faculty advisor and approved by the Construction Engineering Technology Program Chair.

Computer Science

Computer Science is primarily concerned with the study of algorithms and the data structures on which they operate. Topics of interest include problem analysis; algorithm design, implementation, and testing; the definition of programming languages and the construction of environments for creating software; the study of computing hardware; the human/computer interface; and the development of formal techniques for characterizing algorithm efficiency.

The Computer Science curriculum at Louisiana Tech is designed to provide students with a general education in mathematics, science, and the humanities; an in-depth study of computing, including the practical and theoretical aspects of both hardware and software; and an opportunity for graduate study or a challenging position in industry. Because of the rapid pace of change in the field, the program places primary emphasis on fundamental computing concepts including multi-disciplinary applications.

The BS Computer Science Program is accredited by the Computing Accreditation Commission (CAC) of ABET, www.abet.org.

Computer Science Program Educational Objectives

Graduates of the Computer Science Program are expected within a few years of graduation to have:

- Established themselves as practicing Computer Science professionals or engaged in advanced study in a related or complementary area.
- Engaged in professional development in order to remain current in the field for enhanced understanding of current issues in Computer Science.

Computer Science Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences 130, 131 4
English (GER) 6
Humanities (GER)
History 3
Mathematics (GER)
Mathematics 240, 241 6
Mathematics 242 3
Computer Science 100, 120, 122 9
31

Sophomore Year
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 6
Natural Sciences (GER)
Physics 201, 202, 261, 262 8
Mathematics 311 3
Computer Science 220, 222, 265, 345 12
32

Junior Year
Humanities (GER)
English 303 3
English 210, 211, or 212 3
Social/Behavioral Sciences (GER)
Economics 202 3
Computer Science 310, 325, 330, 364, 430 15
Directed Electives*
Mathematics/Science 3
Minor/Concentration** 3
30

Senior Year
Humanities (GER)
English 363 3
Computer Science 403, 404 6
Statistics 405 3
Directed Electives*
Computer Science 6
Minor/Concentration** 9
27

Total Semester Hours 120

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

The Computer Science Program requires a "C" or better in any course in the College of Engineering and Science prior to taking courses for which these are prerequisites. A student must have at least a 2.0 cumulative GPA in all Computer Science classes.

*Directed Electives are chosen by the student in consultation with a faculty advisor and approved by the Computer Science Program Chair.

**All Computer Science majors are required to complete either a minor in another discipline, or a set of directed electives chosen in consultation with the faculty advisor from one of the following concentrations:

Concentration in Bioinformatics: Computer Science 486, 487, 493, and 498.

Concentration in Cloud Computing and Big Data: Computer Science 485, 493, 498, and one of the following: Computer Science 450 or 475.

Concentration in Computer Engineering: Electrical Engineering 242, 322, 423, and Engineering 221.

Concentration in Cyber Security: Computer Science 442, 450, and two of the following: Computer Science 443, 444, 446, 447, 448, 452, 454, 475, or Mathematics 308.

Concentration in Graphics and Game Design: Computer Science 470, 475; Art 464; and Mathematics 308.

Any remaining open courses in the minor or concentration must be approved by the student's advisor or the Computer Science Program Chair.

Subject to the approval of the Computer Science Program Chair, students who complete a second bachelor's degree (double degree) may use that degree to satisfy the minor requirement. For a Business Administration minor, the course Computer Information Systems 310 will not be accepted because of overlap, but will need to be substituted by any non-Computer Information Systems College of Business course at the 300-level and above.

Requirements for a Minor in Computer Science

Students in other departments who wish to minor in Computer Science are required to take 21 semester hours of Computer Science courses consisting of Computer Science 100, 120, 122, 220, 325, and six additional hours at the 300-level or above.

Cyber Engineering

Cyber Engineering may be defined as the fusion of computer science, electrical engineering, and mathematics, with the integration of the humanities in order to (1) research and develop systems solutions across cyberspace; (2) create new structures that have novel functions because of their use across cyberspace; (3) harness the potential of the electromagnetic spectrum in a systematic way; and (4) develop the mathematical structures necessary for engineering across cyberspace. Like biotechnology and information technology, cyber engineering is a growth industry with potential to greatly change the world in which we live. The purpose of the undergraduate program at Louisiana Tech University is to prepare graduates with the knowledge and skills in integrating basic computer science, electromagnetic sciences and mathematics with engineering fundamentals to design and develop useful technology while also preparing students to be technical leaders in cyber security with a thorough understanding of the associated security concerns, social and political impacts and ethical consequences. The program combines the basic sciences, engineering principles, and the practical aspects of current technological tools used across cyberspace to produce engineers capable of solving special kinds of problems.

Graduates with a degree in Cyber Engineering will have many opportunities at the boundaries of traditional engineering due to the cross-disciplinary nature of their degree. We expect many graduates of this program to pursue research-based careers by going on to graduate study or working in government laboratories as well as research centers. Graduates will also find opportunities to work in a commercial environment through ever expanding needs in the many new cyber-security companies or corporate divisions that are emerging. A November 2010 report of the CSIS Commission on Cyber security for the 44th Presidency highlighted the fact that the United States needs about 10,000 to 30,000 cyber-security specialists while having less than 1,000. Whatever the environment, commercial or research, these employment opportunities will be very exciting and at the cutting edge to this area of national need.

Cyber Engineering Program Educational Objectives

- Career Preparation: To prepare graduates for employment as engineers, for graduate study in engineering, science, business, or government. Our graduates will understand the application of engineering principles to cyberspace, and will receive specific additional technical training in computer science, electrical engineering, and mathematics.
- Skills: To prepare graduates with skills that will enable them to

be immediately productive in their chosen career. These tools include knowledge of contemporary topics in cyberspace and cyber engineering, understanding the modern engineering tools, design experience, and professional experience appropriate to their post-graduation goal.

- Professionalism: To produce graduates who communicate effectively, who understand and undertake professional responsibilities, and who function effectively as members and leaders of multi-disciplinary teams.
- Lifelong Learning: To produce graduates who believe that their undergraduate engineering education was a wise investment and who desire to continue to develop their knowledge and skills throughout their careers.

Cyber Engineering Curriculum (BS)

Freshman Year
English (GER)
English 101, 102 6
Mathematics (GER)
Mathematics 241, 242 6
Mathematics 243 3
Natural Sciences (GER)
Physics 201 3
Cyber Engineering 120, 122 6
Engineering 120, 121, 122 6
30

Sophomore Year
Humanities (GER)
History 3
English 210, or 211, or 212 3
Natural Sciences (GER)
Physics 202 3
Engineering 220, 221 6
Electrical Engineering 232, 242 5
Mathematics 244, 311 6
Computer Science 220, 345 6
Cyber Engineering 301. 3
35

Junior Year
Social/Behavioral Sciences (GER) 6
Engineering 222 3
Electrical Engineering 423 3
Mathematics 245, 308 6
Computer Science 364, 450 6
Cyber Engineering 480 3
Directed Electives*
Cyber Engineering 9
36

Senior Year
Humanities (GER)
English 303, 363 6
Natural Sciences (GER)
Biological Science 101 3
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 3
Statistics 405 3
Cyber Engineering 400, 481, 482 9
27

Total Semester Hours 128

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Directed Electives are chosen by the student in consultation with a faculty advisor and approved by the Cyber Engineering Program Chair. The Cyber Engineering Program requires a "C" or better in any course in the College of Engineering and Science prior to taking courses for which these are prerequisites. A student must have at least a 2.0 cumulative GPA in all Cyber Engineering courses.

Electrical Engineering

Electrical Engineering is that profession which deals with the application of the fundamental laws of electrical phenomena to the service of mankind. Broadly, electrical engineers are involved in one or more of the following areas: electromagnetics; the design of electronic and solid-state devices; the control, conversion, and distribution of energy; computing and data processing; and communications, including transmission and retrieval.

Electrical Engineering Program Educational Objectives

Graduates of the Electrical Engineering Program are expected within a few years of graduation to have:

- Established themselves as practicing professional or engaged in an advanced study in an electrical engineering or related area.
- Received positive recognition and reward for the productive application of their skills and knowledge.

The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. Graduates of this program are encouraged to become registered professional engineers.

Electrical Engineering Curriculum (BS)

Freshman Year
English (GER) 6
Mathematics (GER)
Mathematics 241, 242 6
Natural Sciences (GER)
Biological Science 101 3
Physics 201 3
Chemistry 101, 103 3
Engineering 120, 121, 122 6
27

Sophomore Year
Humanities (GER)
History, English 303 6
Natural Sciences (GER)
Physics 202 3
Social/Behavioral Sciences (GER) 3
Engineering 220, 221 6
Mathematics 243, 244, 245 9
Electrical Engineering 223, 232, 242 8
35

Junior Year
Humanities (GER)
English 363 3
Engineering 222 3
Mathematics 313 3
Electrical Engineering 224, 229, 311, 321, 322, 334, 335, 336, 339, 411 25
34

Senior Year
Fine Arts (GER) 3
Humanities (GER)
English 210, 211, or 212 3
Social/Behavioral Sciences (GER) 6
Electrical Engineering 406, 407, 408 3
Directed Electives* 9
Electrical Engineering Senior Elective** 8
32

Total Semester Hours 128

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement. (pg. 17)
*Directed Electives chosen by the student in consultation with faculty advisor and approved by the Electrical Engineering Program Chair.
**Electrical Engineering Seniors are required to complete two groups of courses (total 8 hrs.) selected from the following four groups:
Electrical Engineering 437(3) and 439(1)

Electrical Engineering 461(3) and 469(1)
Electrical Engineering 471(3) and 479(1)
Electrical Engineering 481(3) and 489(1)

Double Degree in Electrical Engineering and Physics

If your primary degree and major is Electrical Engineering, the following changes to the Physics curriculum will allow you to obtain a second degree with a major in Physics:

- Substitute ENGR 122 for PHYS 102 and 103 (i.e. project-based freshman design course);
- Add PHYS 261 and 262 sophomore labs not required in the ELEN curriculum;
- Substitute ENGR 222 for PHYS 307;
- Substitute ELEN 311 and 411, for PHYS 406 and 407;
- Substitute ELEN 223 for PHYS 408 and 409;
- Substitute ELEN courses for PHYS directed electives, as long as the electives include one computational course;
- Student can concurrently enroll in PHYS 435 with Senior Design. Senior design project can count toward PHYS 435 research requirement if turned in to completely satisfy course requirements of PHYS 435.

Total additional requirements are 25 semester credit hours (PHYS 304, 422, 423, 416, 417, 418, 419, 424, plus sophomore labs, plus 435 which can be concurrent with senior design) to add a Bachelor of Science degree with a major in Physics.

Requirements for a Minor in Electrical Engineering

A minor in Electrical Engineering consists of 21 credit hours of Electrical Engineering (ELEN) courses approved by the Electrical Engineering Program Chair. At least 12 hours of these courses must be at the 300- or 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Electrical Engineering Technology

The increasing complexity of industrial processes, a continuing expansion of research activities and the need for greater cost-effective productivity has created a need for a new group of specialists known as engineering technologists. These technologists work with professional engineers and scientists to design, install, operate and maintain complex technical systems. Technologists may also assume independent responsibilities for the coordination of the people, materials and equipment required to create these systems. To meet his/her responsibilities, the technologist must possess a variety of skills and have both practical and theoretical knowledge.

The Electrical Engineering Technology curriculum includes circuit analysis, electronics, computers, electrical power, communications, instrumentation and control systems. The program combines course work and coordinated laboratory work to create graduates who are capable of performing a variety of technical tasks. Both areas emphasize the latest in solid-state devices, integrated circuits and microprocessor technology. The technology graduate also receives training in technical writing, public speaking and general industrial practices. This combination of elements produces graduates qualified for a wide variety of commercial and industrial employment opportunities in the fields of electrical and electronics technology.

The Electrical Engineering Technology program is accredited by the Technology Accreditation Commission of ABET, www.abet.org.

Electrical Engineering Technology Program Educational Objectives

Electrical Engineering Technology graduates will:

- Secure professional positions in electrical, electronic, or related fields by leveraging their Electrical Engineering Technology skills and knowledge.
- Receive positive recognition and reward for the productive application of their skills and knowledge.
- Attain greater professional competence applying principles of continuous learning.
- Gain personal satisfaction through the exercise of competent, ethical, and socially responsible professional practice.

Electrical Engineering Technology Curriculum (BS)

Freshman Year	
Fine Arts (GER)	3
Computer Literacy (GER)	3
English (GER)	
English 101, 102	6
Humanities (GER)	
History	3
Mathematics (GER)	
Mathematics 101, 112	6
Electrical Engineering Technology 100, 170, 171, 180, 181	9
	30
Sophomore Year	
Natural Sciences (GER)	
Physics 209, 210, 261, 262	8
Biological Sciences 101	3
Mathematics 220, 223	6
Electrical Engineering Technology 260, 261, 268, 270, 271, 272, 273, 280	16
	33
Junior Year	
Humanities	
English 210, 211, or 212	3
Social/Behavioral Sciences (GER)	6
Chemistry 100, 101, 103	5
Electrical Engineering Technology 360, 361, 370, 371, 374, 375, 380	13
	27
Senior Year	
Humanities (GER)	
English 303	3
Communication 377	3
Social/Behavioral Sciences (GER)	3
Electrical Engineering Technology 422, 423,460, 461, 470, 471, 472, 475, 476, 477	16
Elective	3
Technical Elective*	2
	30
Total Semester Hours	120

(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Selected by student in consultation with faculty advisor and approved by the Electrical Engineering Technology Program Chair.

Industrial Engineering

Industrial engineering involves decision-making related to the best use of people, material, equipment and energy to achieve the goals of an organization. The organization may be a manufacturing facility, hospital, bank, amusement park, airline, government office, or any other group organized to make a product or perform a service. Industrial engineers make significant contributions to their employers by saving money while improving the workplace for fellow workers.

If there is one phrase that summarizes the activities of industrial engineers, it is "the search for a better way." Some examples are determining a better way to make workplaces more comfortable and safer by improving workstations and work procedures, a better way to perform assembly operations by using robots and machine vision systems, a better way to reduce inventory cost by using just-in-time technology, a better way to assure product quality by statistical process control techniques, a better way to improve the efficiency of the entire organization by implementing Lean-Six Sigma technologies, and so on.

Manufacturing firms and service industries hire a significant number of industrial engineers. Today, more and more businesses hire

industrial engineers in areas such as computer information systems, business operations, finance, and sales and marketing. Corporations as diverse as Coca Cola, UPS, Disney, IBM, Entergy, Lockheed Martin, Northrop Grumman, Intel, Microsoft, Motorola, and Boeing all employ people with industrial engineering backgrounds to help manage their business. Many industrial engineers enter the workforce as engineers but eventually move into upper level management.

The industrial engineering curriculum has been developed to prepare students for meaningful careers in this challenging and important branch of engineering. The success of the program is evidenced by the high demand for its graduates in all sectors of the economy.

Industrial Engineering Program Educational Objectives

- Our alumni, within 3 to 5 years of graduation, are employed as engineers or hold leadership positions in design, manufacturing, consulting, construction, or service industries/organizations and/or are engaged in advanced study in engineering or business schools.
- Our alumni, within 3 to 5 years of graduation, are making systems improvement decisions for their organizations.

The Industrial Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. Graduates of this program are encouraged to become registered professional engineers.

Industrial Engineering Curriculum (BS)

Freshman Year
Natural Sciences (GER)
- Chemistry 101*, 103* 3
- Biological Sciences 101 3
- Physics 201* 3

English (GER) 6
Mathematics (GER)
- Mathematics 241*, 242* 6

Engineering 120*, 121*, 122* 6
27

Sophomore Year
Natural Sciences (GER)
- Chemistry 102* 2

Humanities (GER)
- History 3

Engineering 220, 221, 222 9
Industrial Engineering 300, 301, 315 8
Mechanical Engineering 215, 321 3
Mechanic and Materials 201 2
Mathematics 243*, 244*, 245 9
36

Junior Year
Natural Sciences (GER)
- Physics 202 3

Humanities (GER)
- English 303, 363 6

Mathematics 308 3
Industrial Engineering 400, 401, 402, 404, 405, 409, 413, 414 23
35

Senior Year
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 9
Humanities (GER)
- English 210, 211, or 212 3

Industrial Engineering 407, 408, 410, 421, 422, 423 12
Directed Elective** 3
30

Total Semester Hours 128
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Grade of "**C**" or higher required.

**Directed electives chosen by student in consultation with faculty advisor and approved by the Industrial Engineering Program Chair.

Requirements for a Minor in Industrial Engineering

A minor in Industrial Engineering consists of 21 credit hours of Industrial Engineering (INEN) courses approved by the Industrial Engineering Program Chair. At least 12 hours of these courses must be at the 300- or 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Mathematics and Statistics

Mathematics and statistics courses are designed as follows: (1) to provide mathematics courses that serve as General Education Requirements (GER); (2) to serve the requirements of students pursuing a curriculum in business, education, engineering, etc.; and (3) to provide students majoring in mathematics a thorough preparation for graduate-level mathematics or for employment in industry or education. This program leads to the degree of Bachelor of Science.

Requirements for a Major in Mathematics

Each student majoring in mathematics is assigned an advisor from the Mathematics and Statistics program. The student is requested to meet with his/her advisor at least once during each quarter, at which time courses for the following quarter are decided upon.

Each mathematics major must complete the mathematics curriculum which follows with a grade of "**C**" or higher in all mathematics and statistics courses, and must complete a minor. The minor subject must be chosen with the approval of the student's advisor. The minor requirements are listed under the department concerned.

Students who wish to obtain a more intensive degree program with a concentration in statistics/mathematics/engineering are not required to declare a minor if they earn 21 additional semester hours credit in mathematics, statistics, or engineering courses which are approved by the student's advisor. Note: No course may count toward the required mathematics and statistics courses in the mathematics curriculum and also the statistics/mathematics/engineering concentration.

Mathematics Curriculum (BS)

Freshman Year
Natural Sciences (GER)
- Chemistry 101*, 102, 103*, 104 6
- Biology 130, 131 4

English (GER) 6
Mathematics (GER)
- Mathematics 241*, 242* 6

Humanities (GER)
- History 3

History*** 3
28

Sophomore Year
Computer Literacy (GER)
- Computer Science 120 or Mathematics 313 3

Social/Behavioral Sciences (GER) 6
Mathematics 243*, 244*, 245* 9
Physics 201*, 202, 261*, 262 8
Humanities (GER)
- English 210, 211, or 212 3

Electives for Minor/Concentration* 3
32

Junior Year
Fine Arts (GER) 3
Foreign Language*** 6
Mathematics 307*, 308* 6
Mathematics or Statistics Electives** 6
Electives for Minor/Concentration* 9
30

Senior Year
Humanities (GER)

English 303 3
Communication 110 or 377....3
Mathematics 408*, 482*....6
Mathematics or Statistics Electives**....6
Electives for Minor/Concentration*....6
Science Elective....3
Social/Behavioral Sciences (GER)....3
30

Total Semester Hours....120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

*Grade of "**C**" or higher required

Mathematics electives above 300, Statistics electives above 200 (other than STAT 402). Grade of "C**" or higher required.

***Can be replaced by courses which are approved by the student's advisor and are at or above the 300 level in English, mathematics, or the student's minor/concentration.

Requirements for a Minor in Mathematics

Students in other departments who wish to minor in mathematics are required to take Math 242, 243, 244, 245 and an additional 9 semester hours earned in statistics courses or mathematics courses numerically above Math 300 and Statistics 200 (other than STAT 402). No more than 6 semester hours may be in statistics. Note: The student must have met all prerequisite requirements before enrolling in any mathematics or statistics course.

Requirements for a Minor in Actuarial Science

A minor in Actuarial Science consists of eighteen (18) credit hours of the following courses: INEN 301, STAT 405, and nine (9) hours of MATH 490 in statistics area in support of Actuarial Science. INEN 301 can be replaced by ACCT 202. Course applied toward minor must be completed with athe grade of "C" or higher. NOTE: For Mathematics majors who wish to minor in Actual Science, MATH 315, STAT 405, and nine hours of MATH 490 used for the Actuarial Science minor can not be counted towards their major requirements; a 300-level or above mathematics course needs to be used in place of INEN 301 to fulfill the major requirement.

Dual Degree in Engineering/Computer Science and Mathematics, or a Double Major in Chemistry and Mathematics, or a Double Major in Physics and Mathematics

If your primary degree program is in one of the professional Engineering disciplines, or in Computer Science, the following changes to the Mathematics curriculum will allow you to obtain dual degrees in your primary major and in Mathematics. Similarly, if your primary degree program is Chemistry or Physics, the following changes to the Mathematics curriculum will allow you to obtain a double major in your primary area and Mathematics.

- Substitute primary major courses for courses in the minor.
- Substitute primary major courses for the foreign language courses and the second history course.
- In addition to the classes required for the primary degree, you must take the following classes.
- Mathematics 307, 308, 408, and 482.
- Four (4) additional Mathematics electives.
- Chemistry 101, 102, 103, 104 and Physics 201, 202, 261, 262. Note that most of these classes are already required in your primary degree's curriculum.
- Biological Sciences 130 and 131 instead of 101.
- Computer Science majors also must take Mathematics 243, 244, and 245.
- A minimum of 30 semester hours are required in addition to the requirements for the Engineering or Computer Science degree. Note that most of these hours are earned when taking the above courses.

Students interested in pursuing a dual degree program in Engineering and Mathematics, or Computer Science and Mathematics, should contact the Mathematics Program Chair for a curriculum review and detailed requirements of the program.

Students interested in pursuing a double major in Chemistry and Mathematics, or Physics and Mathematics, should contact the Mathematics Program Chair for a curriculum review and detailed requirements of the program.

Mechanical Engineering

Mechanical Engineering is the profession that deals with the design, development, testing, manufacturing, and maintenance of machines, systems, devices, and components for the betterment of society. Mechanical engineers are involved with such areas as aerospace engineering, automatic control systems, automotive engineering, chemicals, oil and gas, computer aided design, manufacturing, energy conversion, engineering materials, environmental engineering, machine design, manufacturing processes, medicine, robotics, stress analysis, and thermal systems.

Mechanical engineers may deal with hardware as small as a microchip or as large as an aircraft carrier. They may work from the bottom of the ocean up to the weightless environment of interplanetary space. Of all the engineering disciplines, mechanical engineering is the most diversified and offers the largest selection of career paths. If you can see it or touch it, a mechanical engineer probably helped to create it.

The Mechanical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. Graduates of this program are encouraged to become registered professional engineers.

Mechanical Engineering Program Educational Objectives

Graduates of the Mechanical Engineering Program are expected within a few years of graduation to have:

- Established themselves as practicing professionals or engaged in advanced study in an engineering or related area.
- Demonstrated their ability to work successfully as a member of a professional team and function effectively as responsible professionals..

The curriculum includes courses featuring a wide variety of both technical and non-technical topics. Instruction is delivered in a variety of modes designed to assure that upon graduation, each student has the ability to become a successful mechanical engineer.

Mechanical Engineering Curriculum (BS)

Freshman Year
Humanities (GER)
History....3
Natural Sciences (GER)
Chemistry 101*, 102*, 103*....5
Physics 201*....3
Biological Sciences 101....3
English (GER)....6
Mathematics (GER)
Mathematics 241*, 242*....6
Engineering 120*, 121*, 122*....6
32

Sophomore Year
Humanities (GER)
English 303....3
Natural Sciences (GER)
Physics 202*....3
Engineering 220*, 221*, 222*....9
Mechanical Engineering 215....1
Mechanics and Materials 201*, 203*....5
Mathematics 243*, 244*, 245*....9
30

Junior Year
(Cumulative GPA of 2.70 is required to enroll in upper level mechanical engineering courses.)
Fine Arts (GER)....3
Humanities (GER)

English 363 3
Mathematics 313 3
Mechanical Engineering 321, 332, 350, 353, 361, 363, 371, 382 20
Mechanics and Materials 211*, 313* 5
34

Senior Year
Humanities (GER)
English 210, 211, or 212 3
Social/Behavioral Sciences (GER) 9
Industrial Engineering 300 2
Mechanical Engineering 451, 462, 480, 481, 482 9
Directed Electives** 9
32

Total Semester Hours 128
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)
*Grade of "**C**" or higher required.
**Directed electives chosen by student in consultation with faculty advisor and approved by the Mechanical Engineering Program Chair.

Requirements for a Minor in Mechanical Engineering

A minor in Mechanical Engineering consists of 21 credit hours of Mechanical Engineering (MEEN) and/or Mechanics and Materials (MEMT) courses approved by the Mechanical Engineering Program Chair. At least 12 hours of these courses must be at the 300- or 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

Nanosystems Engineering

Nanotechnology may be defined as (1) research or technology development at the atomic, molecular or macromolecular levels, in the length scale of approximately 1-100 nanometers; (2) creating and using structures that have novel properties or functions because of their small size; or (3) controlling or manipulating matter on the atomic scale. Like biotechnology and information technology, it is a growth industry with the potential to greatly change the world in which we live. Nanosystems engineering can be considered the branch of engineering that deals with the development of materials, devices, or systems that have features smaller than 100 nanometers (1 nanometer is a billionth of a meter), especially with the manipulation of individual molecules. The purpose of the undergraduate program at Louisiana Tech University is to prepare graduates with the knowledge and skills in integrating basic nanoscale science with engineering fundamentals to design and develop useful technology. The program combines the fundamentals of the basic sciences (chemistry, physics, and biology), engineering principles, and the practical aspects of current technological tools of nanoscience to produce engineers capable of solving special kinds of problems. In order to provide depth and focus in possible applications of nanotechnology, students select an engineering concentration area as part of their curriculum from one of the following: biomedical engineering, chemical engineering, electrical engineering, mechanical engineering, or microsystems engineering.

Graduates with a nanosystems engineering degree will have many opportunities at the boundaries of traditional engineering due to the cross-disciplinary nature of their degree. We expect many of the graduates of this program may choose to pursue research-based careers by going on to graduate study or working at government laboratories and/or research centers. Graduates who wish to work in a commercial environment will find ever expanding opportunities in the many new nanotechnology companies that are emerging. The National Science Foundation projects "the market for nanotechnology" to be over $1 trillion annually within the next 10-15 years and has estimated that two million workers will be needed to support nanotechnology industries by 2015. Whatever the environment, commercial or research, these employment opportunities will be very exciting and at the cutting edge of technology.

The Nanosystems Engineering Program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. Graduates of this program are encouraged to become registered professional engineers.

Nanosystems Engineering Program Educational Objectives

Graduates of the Nanosystems Engineering program are expected within a few years of graduation to have

- Established themselves as practicing professionals and/or engaged in advanced study in an engineering or related field.
- Received positive recognition and reward for the productive application of their skills and knowledge.
- Engaged in life-long learning in order to remain technically current in their chosen field.

Nanosystems Engineering Curriculum (BS)

Freshman Year
Natural Sciences (GER)
Chemistry 101, 102, 103, 104 6
Physics 201 3
English (GER)
English 101, 102 6
Mathematics (GER)
Mathematics 241, 242 6
Mathematics 243 3
Engineering 120, 121, 122 6
30

Sophomore Year
Humanities (GER)
English 210 or 211 or 212 3
History 3
Social/Behavioral Sciences (GER) 3
Engineering 220, 221, 222 9
Mechanics and Materials 201 2
Mathematics 244, 245 6
Nanosystems Engineering 201 2
Physics 202 3
31

Junior Year
Natural Sciences (GER)
Biological Sciences 130, 131, or 225, 226* 4
Humanities (GER)
English 303 3
Chemistry 250, 251, 253 5
Directed Electives** 9
Electrical Engineering 334 3
Microsystems Engineering 404, 406 6
Nanosystems Engineering 302, 490 5
35

Senior Year
Fine Arts (GER) 3
Humanities (GER)
English 363 3
Social/Behavioral Sciences (GER) 6
Directed Electives** 9
Mechanical Engineering 382 2
Nanosystems Engineering 406, 407, 408, 410 6
Physics 412 3
32

Total Semester Hours 128
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

The Nanosystems Engineering Program requires a "**C**" or better in any course in the College of Engineering and Science prior to taking courses for which these are prerequisites.

*Students pursuing the Biomedical Engineering concentration

should take BISC 225, 226. All other students should take BISC 130, 131.

**Directed Electives are chosen by students in consultation with faculty advisor from one of the following concentrations:

Biomedical Engineering: Biomedical Engineering 202 or 203, 225, 230, 301, and 401 or 430 and 6 hours of 300- or 400-level electives** in engineering or science.

Chemical Engineering: Chemical Engineering 202, 304, 332, 402, and 6 hours of 300- or 400-level electives** in engineering or science.

Electrical Engineering: Electrical Engineering 223, 224, 335, 336, and 6 hours of 300- or 400-level electives** in engineering or science.

Mechanical Engineering: Mechanical Engineering 350, 353 or 361; Mechanics and Materials 203, 211, 313 and 6 hours of 300- or 400-level electives** in engineering or science.

Microsystems Engineering: Microsystems Engineering 401, 402, 405, 407, and 6 hours of 300- or 400-level electives** in engineering or science.

**All electives must be approved by faculty advisor or Nanosystems Engineering Program Chair.

Physics

This curriculum is designed to give a broad and fundamental knowledge of the principles of physics as well as an introduction to the techniques of physics research. Although the primary aim of the basic curriculum is to prepare the student for graduate work in physics, sufficient specialized courses are available to prepare the graduate for jobs in industry and in various government laboratories. A physics major is an excellent choice for the pre-medical student.

Requirements for a Major in Physics

Each student majoring in physics is required to follow the physics curriculum leading to the Bachelor of Science degree in physics.

For students interested in interdisciplinary fields involving physics, it is suggested that the physics curriculum be followed with all electives taken in the other field of interest. Some interdisciplinary fields are listed with the appropriate elective field in parentheses: astrophysics (astronomy), geophysics (geology), materials science (chemistry and engineering), biophysics (microbiology), mathematical physics (mathematics), solid state (chemistry and engineering).

Physics Curriculum (BS)

Freshman Year
Natural Sciences (GER)
- Biological Sciences 3
- Chemistry 101, 102 4
- Chemistry 103, 104 2

English (GER) 6
Humanities (GER) 3
Mathematics (GER)
- Mathematics 241, 242 6

Mathematics 243 3
Physics 102, 103 2
29

Sophomore Year
Fine Arts (GER) 3
Humanities (GER) 3
Social/Behavioral Sciences (GER) 3
Mathematics 244, 245 6
Physics 201, 202, 261, 262, 307, 320 12
Directed Electives* 3
30

Junior Year
Humanities (GER) 6
Social/Behavioral Sciences (GER) 6
Physics 416, 417, 418, 419, 424 11
Directed Electives* 9
32

Senior Year
Physics 304, 406, 407, 408, 409, 422, 423, 435 20
Directed Electives* 9
29

Total Semester Hours 120
(GER): General Education Requirements (pg. 17)
(IER): International Education Requirement (pg. 17)

*Directed electives can be chosen from advanced Physics, Mathematics, Engineering, Computer Science, or Chemistry courses and must include at least one computer programming course such as Computer Science 120, Mechanical Engineering 292, or Electrical Engineering 242.

Requirements for a Minor in Physics

Students from other departments who elect a minor in physics should complete Physics 201, 202, 261, 262 and 14 semester hours of advanced courses 300-400 level.

Double Degree in Electrical Engineering and Physics

If your primary degree and major is Electrical Engineering, the following changes to the Physics curriculum will allow you to obtain a second degree with a major in Physics:

- Substitute ENGR 122 for PHYS 102 and 103 (i.e. project-based freshman design course);
- Add PHYS 261 and 262 sophomore labs not required in the ELEN curriculum;
- Substitute ENGR 222 for PHYS 307;
- Substitute ELEN 311 and 411, for PHYS 406 and 407;
- Substitute ELEN 223 for PHYS 408 and 409;
- Substitute ELEN courses for PHYS directed electives, as long as the electives include one computational course;
- Student can concurrently enroll in PHYS 435 with Senior Design. Senior design project can count toward PHYS 435 research requirement if turned in to completely satisfy course requirements of PHYS 435.

Total additional requirements are 25 semester credit hours (PHYS 304, 422, 423, 416, 417, 418, 419, 424, plus sophomore labs, plus 435 which can be concurrent with senior design) to add a Bachelor of Science degree with a major in Physics.

Chapter 14 – College of Liberal Arts

Administration

Dean
Donald P. Kaczvinsky
Associate Dean
Stephen Webre
School of Communication
Brenda L. Heiman, Director
School of Design
Karl Puljak, Director
School of History and Social Science
Jason Pigg, Director
School of Literature and Language
Susan Roach, Director
School of the Performing Arts
Mark D. Guinn, Director
Department of Professional Aviation
Jordan G. Lyons, Head

Address

More information can be obtained about the College of Liberal Arts by writing to the following address:

College of Liberal Arts
P.O. Box 3044
Louisiana Tech University
Ruston, LA 71272

or by visiting http://liberalarts.latech.edu

Mission

As part of Louisiana Tech University, the College of Liberal Arts is committed to the University's dedication "to quality in teaching, in research and creative activity, and in public service." First and foremost, the College of Liberal Arts seeks to support the mission of Louisiana Tech University by maintaining "a faculty committed to teaching and advising, a student-oriented faculty that prepares students to achieve their goals in a rapidly changing economic and civic environment...a collegial faculty that will through the advancement of scholarship, applied research, and creative activities, contribute to new developments in knowledge, technology, and art."

Goals

Through their studies, students in the College of Liberal Arts become acquainted with diverse areas of intellectual study and acquire a thorough knowledge through the courses in their major field. This liberal arts education prepares students for business and professional careers as well as providing the basis for a richer and better life. To bring about these ends, The College of Liberal Arts serves both its own majors and the University community in the following ways:

- offering courses in such areas as English, history, modern languages, the arts, and social sciences which are required in many of the curricula at Louisiana Tech University;
- providing traditional humanities and arts courses for students desiring minor fields of study, for non-traditional students who may or may not seek a degree, and for any student interested in learning about the various liberal arts;
- providing pre-professional training for students who intend to study law, speech-language pathology or audiology;
- assisting in the preparation of prospective teachers who desire to major in such subjects as art, English, Modern Languages, music, social science, and speech;
- providing specialized training for vocations in such fields as architecture, aviation, geographic information science, communication design, interior design, journalism, music, and theatre; and
- providing opportunities for graduate study leading toward various graduate degrees.

Accreditation

- Art - Accredited by National Association of Schools of Art and Design
- Architecture - Accredited by National Architectural Accrediting Board
- Interior Design - Accredited by Council for Interior Design Accreditation
- Performing Arts (Music) - Accredited by National Association of Schools of Music
- Professional Aviation - Accredited by Aviation Accreditation Board International
- Speech - Accredited by Council on Academic Accreditation of the American Speech-Language-Hearing Association (Master's Program in Speech Pathology and Doctoral Program in Audiology)

Undergraduate Degrees Offered

The following undergraduate curricula are offered by academic units in the College of Liberal Arts:

Associate of General Studies (available at Barksdale AFB instructional site only)

- General Studies

Bachelor of General Studies

- General Studies

Bachelor of Arts

- Communication
- English
- History
- Modern Languages
- Music
- Political Science
- Pre-Professional Speech-Language Pathology
- Sociology

Bachelor of Fine Arts

- Art-Graphic Design
- Art-Studio Art

Bachelor of Interior Design

- Interior Design

Bachelor of Science

- Professional Aviation
- Aviation Management
- Geographic Information Science

Bachelor of Science Architectural Studies

- Architectural Studies

Minors Offered

Students may earn minors in the following areas:

- Architecture
- Art (Photography, Studio)
- Art History
- Aviation Management
- Communication
- English
- French
- Gender Studies (interdisciplinary)
- Geographic Information Science
- Geography
- Graphic Design
- History
- Interior Design
- International Studies
- Journalism
- Music

- Political Science
- Professional Aviation
- Public History
- Sociology
- Spanish
- Speech (Speech Communication)
- Technical Writing
- Theatre

A student must earn a grade of "**C**" or better in each course applied toward meeting the requirements of a minor.

Admission, Transfer Credit, and Graduation

Admission Requirements

The College of Liberal Arts follows the general admissions policies of Louisiana Tech University, listed in Chapter 2 of this Catalog.

Special Program Admission Requirements

More specific admissions criteria have been established for the following programs in Liberal Arts:

- School of Communication
  Theatre Concentration (see the Director of the School of the Performing Arts)
- School of Design
  Architecture (see the Director)
  Art (see the Director)
- School of the Performing Arts
  Music (see the Director)

Transfer Credit

The College of Liberal Arts follows transfer admissions criteria listed earlier in Chapter 2 of this Catalog. Students transferring must submit an application and a complete, official transcript from each college attended, whether credit was earned or transferable. Students should consult their assigned academic advisor or department head in their major about the transfer of specific courses into the student's curriculum.

Graduation

Candidates for graduation in the College of Liberal Arts must have completed an approved curriculum and must have an average grade of "**C**" or better on all course credits earned. For those curricula specifying such, the minor subject must be chosen with the approval of the student's advisor before the first quarter of the junior year. Twenty-one semester hours of credit are required for a minor.

Physical education requirements are to be met through physical education activity courses, through equivalent participation in the United States Air Force Reserve Officers Training Corps program, or through military service. Not more than 4 semester hours of physical education activity courses will be counted toward degree requirements.

Awards

Contact the appropriate School or Department for more information.

School of Communication

- Debate and Forensic Awards
- Speech-Language Pathology and Audiology Graduate Student Awards

School of Design

- Alpha Rho Chi Award
- American Institute of Architects Gold Medal
- Tau Sigma Delta Medal

School of the Performing Arts

- L. M. Sciro Award for Theatre or Stage Management
- Gregory Stone Memorial Performing Arts Award
- John D. Winters Endowed Scholarship in Theatre
- Vera Alice Paul Award
- Tech Tony Awards
- Mary Beth Thiels Theatre Award
- Band and Choral Service Award
- Band Staff Service Award
- Hoop Troop Basketball Band Award
- Jazz Ensemble Service Award
- Wind Ensemble Service Award

Department of Professional Aviation

- Outstanding Aviation Student Award
- Outstanding Flight Instructor Award
- Professional Aviation Faculty Award

Scholarships

For additional information, please contact the school or department which offers the scholarship.

College of Liberal Arts

- Liberal Arts Alumni Scholarships

School of Communication

- Outstanding Student-Debate Scholarships
- Gladys B. Moore Speech-Language Pathology Scholarship (undergraduate only)
- Freshman Scholarships
- Student Publication Service Scholarships
- Other scholarships available as finances permit

School of Design

- American Institute of Architects Scholarships
- Loyd Ray Click Memorial Scholarship
- Guy Charles Danti Memorial Endowed Scholarship
- Melinda Sue McGee Memorial Endowed Scholarship
- Walpole/Best Endowed Scholarship
- Perry Watson Architecture Scholarship
- F. Elizabeth Bethea Scholarship
- Kristyn Leigh Fontenot Memorial Endowed
- Scholarship for Communication Design
- Lenora McDonald Neel and Oliver Fulton Neel School of Art Endowed Scholarship

School of Literature and Language

- Mary Alice Posey Garrett English Scholarship
- Clairece Harp Lyles Endowed Scholarship in English
- Dorothy Melton Scholarship in English
- Stephanie Pepper Sims Memorial Scholarship in English
- CODOFIL Scholarships

School of History and Social Science

- McGinty Undergraduate History Scholarships
- Travis Melton, Jr., Undergraduate History Scholarship
- John M. Caldwell Memorial Scholarship in Social Sciences
- John K. Price Scholarship in Social Sciences

School of the Performing Arts

- Outstanding Student – Performing Arts
- Merritt Performing Arts Scholarship
- Performing Arts Dorm Scholarship
- Kathleen H. Bryan Scholarship
- LaVerne E. Irvine Scholarship
- Ben Laney Memorial Scholarship
- Helen Thompson Drama Scholarship
- Out-of-State Tuition Waivers
- Simoneaux Memorial Scholarship
- Virginia Thompson Women's Department Club Music Scholarship
- Mabel Anne Walker Harper Piano Scholarship
- Evans Band Endowed Scholarship
- James E. Smith Band Scholarship

Department of Professional Aviation
- James Edward Skinner Scholarship
- Katie Leslie Scholarship
- Louis Waller Scholarship
- Victor Saracini Scholarship

Organizations

School of Communication
- The Louisiana Tech Chapter of the National Student Speech-Language-Hearing Association (NSSLHA)
- Pi Kappa Delta
- Louisiana Tech Debate Union
- Tech Communication Association (TCA)
- Society of Professional Journalists

School of Design
- Art and Architecture Student Association
- American Institute of Architecture Students
- U.S. Green Building Council Students
- National Organization of Minority Architecture Students
- Tau Sigma Delta
- Art and Architecture Student Association
- American Society of Interior Designers (Student Chapter)

School of Literature and Language
- Sigma Tau Delta
- Pi Delta Phi
- Sigma Delta Pi

School of History and Social Sciences
- Phi Alpha Theta
- Pi Gamma Mu
- Phi Alpha Delta
- Gamma Theta Upsilon

School of the Performing Arts
- Kappa Kappa Psi
- Music Educators National Conference (MENC)
- Music Teachers National Association
- Phi Buda Ruda
- Phi Mu Alpha
- Sigma Alpha Iota
- Tau Beta Sigma
- Tech Theatre Players
- Alpha Psi Omega National Theatre Honorary

Department of Professional Aviation
- Alpha Eta Rho
- Aviation Management Society
- Louisiana Tech Flight Team
- Eta Mu Sigma

Bachelor Degree Programs

Degrees in General Studies

Associate of General Studies (AGS)

The Associate of General Studies degree is offered at the TECH - Barksdale AFB instructional site under a Memorandum of Understanding (MOU) between Louisiana Tech University and the Department of the Air Force. The program requires 60 semester hours consisting of 30 hours of General Education Requirements, 15 hours in a thematic concentration, and 15 hours in 2 enrichment areas. Information concerning available thematic concentrations and acceptable electives is available through advisors at the TECH - Barksdale AFB instructional site office. In consultation with an advisor, a plan of study is developed when a student begins the program. A 2.5 GPA in the thematic concentration (no grades below a "C") and 2.0 overall GPA are required for graduation. Further information for this program can be obtained from the Director of the Barksdale program (Barksdale AFB instructional site) or online at URL www.barksdale.latech.edu/

Associate of General Studies Curriculum (AGS)

Freshman Year
English (GER) 6
Mathematics (GER) 6
Natural Sciences (GER) 6
Fine Arts (GER) 3
Humanities (GER 3
Social/Behavioral Sciences (GER) 6
30

Sophomore Year
Approved Concentration 15
Approved Electives (for Enrichment Blocks) 15
30

Total Semester Hours 60
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Bachelor of General Studies (BGS)

The Bachelor of General Studies degree is available on campus, online, and through the TECH - BAFB instructional site. The degree requires a total of 120 semester hours. Of the 120 hours required, 45 must be at the 300/400-level (a minimum of 15 must be 400-level and the remaining 30 at 300- or 400-level.) These hours include:

45 hours of General Education Requirements,
24 hours of Thematic Concentration (chosen in consultation with the advisor), and
51 hours of approved electives (also chosen in consultation with the advisor).

Information about available thematic concentrations and acceptable electives is available through main campus (General Studies Program Coordinator), the TECH - Barksdale AFB Instructional Site (Director of the TECH - Barksdale AFB program) and on the Louisiana Tech University web site. In consultation with an advisor, a plan of study is developed when a student begins the program.

In order to receive a Bachelor of General Studies degree, a candidate must achieve minimum GPA requirements in three areas. The student must have a 2.5 GPA in the 24-hour Thematic Concentration (no grades lower than a "C"); a 2.25 GPA in 45 hours of 300- and 400-level courses; and a 2.00 cumulative GPA.

Bachelor of General Studies Curriculum (BGS)

Freshman Year
English (GER) 6
Mathematics (GER) 3
Natural Sciences (GER) 6
Humanities (GER) 9
Social/Behavioral Sciences (GER) 6
30

Sophomore Year
Mathematics (GER) 3
Natural Sciences (GER) 3
Fine Arts (GER) 3
Humanities (GER) 3
Social/Behavioral Sciences (GER) 3
Approved Courses for Electives 15
30

Junior Year
Approved Concentration 12
Approved Courses for Electives 18
30

Senior Year
Approved Concentration 12
Approved Courses for Electives 18
30

Total Semester Hours 120

(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

School of Communication

The School of Communication offers the Bachelor of Arts degree with majors in:

- Communication (with available concentrations in Communication Studies, Journalism, or Theatre)
- Pre-Professional Speech-Language Pathology

Objectives

The Bachelor of Arts in Communication (with concentrations available in Communications Studies, Journalism, or Theatre) is designed to allow the student to study communication in its various aspects of contemporary communication, from interpersonal and small group communication to media literacy, journalism and theatre. The degree offers specific content concentrations in the areas of Communication Studies, Journalism or Theatre. The BA in Communication curriculum has 12 hours of core curriculum that all three concentrations share.

The Communication Studies Concentration requires 24 semester hours of core courses along with 6 hours of directed electives. All courses are concentrated in contemporary theory, research, and practical application of communication principles. This Concentration area focuses on communication in interpersonal, intercultural, and organizational contexts. Additionally, this curriculum offers 21 elective hours.While the degree can lead directly to careers in public relations, corporate consulting and advertising, it also serves as a rigorous discipline enabling students to pursue graduate work in a variety of fields.

The Journalism Concentration requires 33 hours of multimedia journalism courses that prepare students for a variety careers in storytelling for the mass media, including print, broadcasting, video, photography, graphic design, advertising, public relations, and digital technologies. While most students study for careers in mass media, some use journalism to prepare for law and graduate school.

The Theatre Concentration requires 37 hours of coursework. Additionally, a minimum of 26 hours of electives (which includes six hours of directed electives in (THTR 220/420, Dance and THTR 415, Shakespeare) must be completed. Students may use those electives for selected areas of emphasis or continued holistic study. Majors must make a 'C' or better in all Theatre courses.

The Bachelor of Arts in Pre-Professional Speech-Language Pathology is designed to prepare a student for graduate study in speech-language pathology or audiology. The undergraduate preparation includes a broad educational experience in the liberal arts and sciences and a strong foundation in addition to basic course work in normal and disordered speech, language, and hearing. The undergraduate/pre-professional degree is the first degree that leads to graduate study for speech-language pathologists and audiologists. The master's degree in speech pathology and the doctoral degree in audiology are the entry-level degrees for most professional settings in these fields.

Communication Curriculum (BA)

Freshman Year
Fine Arts (GER) 3
Natural Sciences (GER) 6
English (GER)
English 101, 102 6
Mathematics (GER)
Mathematics 101, and 125 or 130 6
Communications 101, and 110 or 377 6
Electives 3
30

Sophomore Year
Humanities (GER)
History 102 (IER) 3
English 210, 211, or 212 3
Modern Language* 6
Communications 200 or 201, and 202 6
Social/Behavioral Sciences (GER)
Political Science 201 3
Concentration Courses** 6
Electives 3
30

Junior Year
Natural Sciences (GER) 3
Humanities (GER) 6
Modern Language* 3
English 336 3
Concentration Courses** 9
Electives 6
30

Senior Year
Social/Behavioral Sciences (GER)
Psychology 102 3
Sociology 201 3
Concentration Courses** 15
Electives 9
30

Total Semester Hours 120

(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

*Nine hours Modern Language requirement must be in the same language.

**Concentration courses chosen by students in consultation with advisor from one of the following concentrations:

Requirements for the Concentration in Communications Studies. Communications 203, 300, 303, 325, 431, 439, 455, 466 (24); and 6 additional hours selected from Directed Electives in Communication.

Requirements for the Concentration in Journalism. Journalism 101,102, 210, 220, 311, 350 (8), 400 (26); and 9 hours selected from Communication-courses at the 300- or 400-level.

Requirements for the Concentration in Theatre. Students interested in this concentration should contact the Theatre Department in the School of the Performing Arts for specific curriculum requirements. Auditions/interviews for placement within the program are required. These occur prior to enrollment or within the first two weeks on campus. Auditions may take place in a variety of formats: prepared performance pieces, portfolio presentation, or interviews.

Requirements for a Minor in Communication

The following courses are required to complete a minor in Communication: Communications 101, 202, 110 or 377, 203, and 9 additional hours of Communication courses at the 300- or 400-level.

Requirements for a Minor in Journalism

A minor in Journalism can be useful for students in other academic areas who wish to enhance their writing and communication skills.

The following courses are required to complete a minor in Journalism: Journalism 101, 102, 210, 220, and 9 additional hours of Journalism at the 300- or 400-level, and including any two courses in practical journalism.

University Newspaper - *The Tech Talk* and *thetechtalk.org*

Practical experience in newspaper work is afforded the student of journalism through their work as staff members of *The Tech Talk*. In addition to their editorial work on the newspaper staff, journalism students are encouraged to gain experience in the assembly and production of a printed publication. Students can also enhance their multimedia journalism skills through work on *SPEAK* magazine (published three times/year) and the University yearbook, the Lagniappe.

Requirements for a Minor in Theatre

A minor in Theatre is designed for those who have a strong interest in Theatre as a secondary subject. A minimum of 21 hours is required: Theatre 100, 101, 210, 260(3), and 9 additional hours to be chosen from 300- or 400-level theatre courses. For additional information, contact the School of the Performing Arts.

Pre-Professional Speech-Language Pathology Curriculum (BA)

Freshman Year
- Fine Arts (GER) 3
- Natural Sciences (GER)
  - Biological Science 101, 102 6
- English (GER)
  - English 101, 102 6
- Mathematics (GER)
  - Mathematics 101 3
  - Statistics 200 3
- Communication 101, 210, 222 9

30

Sophomore Year

Humanities (GER)
- English 210, 211, or 212, and 332 6

Natural Sciences (GER)
- Physics 205 3

Social/Behavioral Sciences (GER)
- Psychology 102 3

Family and Child Studies 201 3
Speech 205, 301, 302, 447 12
Biological Science 224 3

30

Junior Year

Social/Behavioral Sciences (GER)
- Political Science 201 3
- Sociology 201 3

Humanities (GER)
- History 201, 202 6

Speech 311, 413, 429, 470 10
Family and Child Studies 331 3
International Education Requirement (IER) 3
Electives 2

30

Senior Year

Family and Child Studies (300-level or above) 6
English 303 3
Speech 411, 418, 475 9
Electives 12

30

Total Semester Hours 120

(GER): General Education Requirement (pg. 15)

(IER): International Education Requirement (pg. 15)

Requirements for the Audiology Concentration. At the conclusion of 60 hours of credit leading to the degree of Bachelor of Arts in Pre-Professional Speech-Language Pathology, students wishing to pursue a Concentration in Audiology are required to declare their intention. Those choosing Audiology must include the following courses in their plan of study: Speech 205, 206, 305, 447, 421, 422, and Speech 325 or Psychology 315 for a minimum of 120 semester hours. Students must have a 2.5 earned grade point average for graduation, and no grade lower than a "**C**" in any required Audiology course in the concentration sequence.

School of Design

The School of Design offers the following degrees:
- Bachelor of Fine Arts - Graphic Design (BFA)
- Bachelor of Fine Arts - Studio Art (BFA)
- Bachelor of Interior Design: (BID)
- Bachelor of Science in Architectural Studies (BSAS)

Architecture Mission Statement

Recognizing that architecture is one of the basic or root arts in human culture, the primary mission of the School of Architecture is to provide an accredited professional degree program in architecture that is reflective of the architect's role as the primary shaper and steward of the built environment throughout the life cycle of its buildings and communities. Additionally, the School of Architecture acknowledges that the conscientious making of the built environment is a collaborative endeavor, and consequently its secondary mission is to provide accredited degree programs in allied fields of study that share responsibility for influencing and effecting the nature and quality of the built environment.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards.

Architecture Program Mission Statement

To provide a comprehensive and uncompromising, balanced, and demanding education in the art (poetic expression), craft (technical processes), and practice (professional services) of ethical building through the polytechnic tradition of "hands-on" experiences and empirical learning that prepares an individual to be an architect in the fullest sense of the word.

Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Louisiana Tech University's School of Architecture offers the following NAAB-accredited degree program:
- M.Arch (pre-professional degree + 30 graduate credits)

Bachelor of Science in Architectural Studies (BSAS)

Freshman Year – Foundation Level
- Architecture 112, 115, 122, 125, 134, 135 15
- English (GER) 6
- Humanities (GER)
  - History 102 (IER) 3
- Mathematics (GER)
  - Mathematics 101, 112 6
- Natural Sciences (GER)
  - Biological Sciences 101 3

33

NOTE: The School of Architecture requires that each student entering the Sophomore Year of its two programs have access to a computer in class for the written, calculating, and graphic work associated with required courses.

Sophomore Year – Foundation Level
- Architecture 211, 215, 222, 225, 233, 235 18
- Humanities (GER)
  - English 210, 211, or 212 3
- Natural Sciences (GER)
  - Physics 209, 210 6
- Social/Behavioral Sciences (GER) 6
- Elective 3

36

Junior Year – Professional Concentration
- Architecture 315, 325, 334, 335, 341, 343, 351, 352, 353, 361, 471 29
- Electives 4
- Humanities (GER)
  - English 303 3

36

Senior Year – Professional Concentration
- Architecture 411, 414, 415, 425, 434, 435, 453 22
- Humanities (GER)
  - Communication 110 or 377 3
- Electives 5

Social/Behavioral Sciences (GER)
Psychology 455 3
33

Total Semester Hours 138
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

No grade lower than "**C**" in Architecture or Interior Design courses will apply towards the Bachelor of Science in Architectural Studies.

Electives must include at least 3 credit hours from disciplines other than architecture.

All students are required to acquire a minimum of 400 clock hours of architectural practice experience and/or architecture-related community service after the Foundation Level to satisfy graduation requirements.

Requirements for a Minor in Architecture

A minor in architecture consists of 20 credit hours of architecture course work. The plan of study must include ARCH 134, 211, 222, 233, 334, 361, 391, 411, 434, and PSYC 455. Any deviation from this plan of study must be approved by the Director, School of Architecture.

Art Objectives

The School of Design prepares students to become professional artists and to develop as individuals enlightened in the production of art culminating in the Bachelor of Fine Arts and/or Master of Fine Arts degrees. To support these objectives we provide the student with a series of guided experiences in the history of art, the use of materials, the development of a personal aesthetic, and the encouragement of artistic mastery. These objectives endow our students with the attitudes and skills needed to become mature, self-motivated artists.

Bachelor of Fine Arts Program Objectives

This program is designed to develop a deep and lasting appreciation for the visual arts and train students to become professional artists in their respective fields of study. The candidate for a degree must complete the prescribed General Education Requirements (GER) courses and pass the remaining art courses with no grade below a "**C**".

Prerequisites

Courses beyond the basic design, drawing, and art history survey courses have prerequisites, as the knowledge gained in each successive course builds on the previous experience. Students who qualify for Advanced Placement Credit will be given credit for art elective courses; however, all students must enroll in the basic design and drawing courses because of the importance of learning the content of these introductory courses.

NOTE: All students enrolling in Art 115 must have an appropriate laptop computer and designated software. Specific descriptions of these are available on our web site www.art.latech.edu

Senior Exhibit

A senior exhibit is required of all art majors and will be a graded component of their final major studio course. A passing grade in this course is contingent upon a "**C**" or better grade for the exhibit. The program coordinator assigns this grade. The following courses (by areas) will serve as the final major studio/exhibit course:

- Graphic Design: Art 475
- Photography: Art 474
- Studio: Art 403

Art - Graphic Design Curriculum (BFA)

Students entering this field of study will pursue courses in the core curriculum during their freshman year. These include drawing, basic design, and design software as well as the first graphic design class, Art 160. The sophomore, junior, and senior years are spent specializing in the graphic design area. Courses include typography, document design, production techniques, identity campaign, advertising campaign, web page design, and electives of the student's choice. Much of the senior year is directed toward the preparation of a portfolio which will provide evidence to a potential employer of the graduate's talents and expertise in the graphic design field. Upon graduation students are qualified to perform professionally in a wide variety of design-related industries: print media, advertising agencies, corporate design, web and multi-media design, among other related activities.

Freshman Year
Art 115, 116, 118, 119, 125, 126, 160 21
English (GER) 6
Mathematics (GER) 6
33

Sophomore Year
Art 260, 261, 262, 263, 264, 266, 267 21
Natural Sciences (GER) 6
Humanities (GER)
History (IER) 3
Social/Behavioral Sciences (GER) 3
33

Junior Year
Art 360, 361, 362, 363, 365 or 367 15
Art 225 or 228 or 229 3
Natural Sciences (GER) 3
Humanities (GER)
Communication 110 or 377 3
English 210, 211, or 212 3
27

Senior Year
Art 463, 475 6
Art Elective 3
Art History Elective 3
Graphic Design Electives 6
Social/Behavioral Sciences (GER) 6
Humanities (GER) 3
27

Total Semester Hours 120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Art-Studio Curriculum (BFA)

The Studio program provides areas of concentration in ceramics, drawing, painting, photography, printmaking, and sculpture. During the freshmen and sophomore years, Studio majors share a common curriculum. The junior and senior years consist of a flexible curriculum structured primarily around studio assignments, individual criticism, group lectures, and seminars. Coursework emphasizes the use of materials as a means of self-expression. Technique is studied as an important aspect of art training. However, the intent of the program is to examine the reasons art is made and how art impacts the lives of those who make it as well as those who view it. Learning methods of solving visual problems, students develop into well-rounded artists and craftsmen. The equipment provided by the program allows students an opportunity to master the various tools and techniques available to the artist.

Freshman Year
Art 115, 116, 118, 125, 126, 130 18
English (GER) 6
Mathematics (GER) 6
Humanities (GER)
Communication 110 or 377 3
33

Sophomore Year
Art Studio Major 6
Art 220, 225 or 228 or 229, 240 or 241, 250, and 171 or 274 15
Art 266, 267 6
Natural Sciences (GER) 6
33

Junior Year
Art Major Studio 12
Art 318 3
Social/Behavioral Sciences (GER) 9
Humanities (GER)
English 210, 211, or 212 3
Additional Humanities Course 3
30

Senior Year
Art Major Studio 6
Art History Elective 6
Humanities (GER)
History (IER) 3
Natural Sciences (GER) 3
Art 402, 403 6
24

Total Semester Hours 120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Requirements for a Minor in Art

For a minor, 40 to 60 % of the 21-hour requirement must be at the 300-level or above. The following courses will constitute an art minor: Art 115, 125, 468, and art electives with 9 to 12 hours at the 300- or 400- level. Prerequisites may necessitate more hours than the minimum 21 specified.

Art - Graphic Design. The following courses will constitute a minor: Art 119, 160, 260, 261, 262 or 263, 264, 360, 362, and 12 hours of 300/400 graphic design electives. Prerequisites may necessitate more than the minimum 36 hours specified. Minors are interviewed and advised by the graphic design area coordinator.

Art – Photography. The following courses will constitute a minor: Art 115, 171, 172, 378, plus nine hours at the 300 – 400 level from the following courses: 371, 372, 373, 374, 452. Prerequisites may necessitate more than the minimum 21 hours specified. Minors are interviewed and advised by the photography area coordinator.

Art – Studio. Course work will be determined upon interview with the curriculum advisor.

Requirements for a Minor in Art History

A minor in Art History requires Art 266, and 267, and an additional 15 hours chosen from Art 264, 378, 459, 460, 461, 465, 466, 468, 469 and 499; or Architecture 211, 222, and 231.

Interior Design Mission Statement

To rigorously engage in student-centered learning focused on the interplay between surface and volume, light and color, texture and pattern, scale and status, and movement and view in order to prepare an individual to become a specialist in the art (poetic expression), craft (technical processes), and practice (professional services) of giving physical shape, sustainability, and identity to the interior spaces that we move through, exist in, and use in our daily lives. The Interior Design program is accredited by the Council for Interior Design Accreditation (CIDA), and academically prepares the student for the NCIDQ exam en route to becoming a fully qualified interior designer.

Bachelor of Interior Design Curriculum (BID)

Students transferring into interior design from another accredited institution are required to earn a minimum of 32 credit hours from Louisiana Tech University to be eligible for the award of the Bachelor of Interior Design degree; additional course work beyond the 125 credit hours stipulated in the curriculum may be required to meet equivalency requirements.

Freshman Year - Foundation Level
Interior Design 250 2
Architecture 112, 115, 122, 125 10
Art 116 3
English (GER) 6
Humanities (GER)
History 102 (IER) 3
Mathematics (GER)
Mathematics 100 or 101,and 112 6
Natural Sciences (GER)
Biological Sciences 101 3
33

NOTE: The School of Architecture requires that each student entering the Sophomore Year of its two programs have access to a laptop computer in class for the written, calculating, and graphic work associated with required courses.

Sophomore Year - Foundation Level
Interior Design 242, 243, 244, 252, 253, 254 9
Architecture 211, 222, 233, 380 8
Humanities (GER)
English 210, 211, or 212 3
Natural Sciences (GER)
Physics 205, 206 6
Social/Behavioral Sciences (GER) 6
32

Junior Year - Professional Concentration
Interior Design 316, 342, 343, 344, 352, 353, 354 15
Architecture 352, 353 6
Art 267 3
Humanities (GER)
English 303 3
Communication 110 or 377 3
30

Senior Year - Professional Concentration
Interior Design 442, 443, 444, 451, 452, 453, 454, 456 18
Social/Behavioral Sciences (GER)
Psychology 455 3
Electives 9
30

Total Semester Hours 125
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

No grade lower than a "**C**" in Art, Architecture, or Interior Design courses will apply toward the Bachelor of Interior Design degree.

All students are required to acquire a minimum of 400 clock hours of interior design practice experience and/or interior design-related community service after the Foundation Level to satisfy graduation requirements.

Requirements for a Minor in Interior Design

A minor in interior design consists of IDES 250, 316, 342, 343, 344, 442, 461; ARCH 211, 222; ART 267; and PSYC 455. Any deviation from this plan of study must be approved by the Director, School of Architecture.

School of History and Social Sciences

The School of History and Social Science offers the Bachelor of Arts degree with majors in:

- History
- Geographic Information Science (Interdisciplinary)
- Political Science
- Sociology

Objective - History

In the established tradition of liberal arts education, the Department

of History provides students with personal cultural enrichment, while preparing them for employment in fields in which historical knowledge, habits of mind, and skills (such as research, analysis, and communication) are valued, and/or for further study leading to careers in teaching, the law, the ministry, government service, and many others.

Chair in History

The Garnie W. McGinty Chair of History, endowed in 1977 by Dr. G. W. McGinty, former head of the History Department, is currently occupied by a member of the department. The McGinty Trust Fund also enables the department to publish scholarly historical works and to award scholarships to qualified students. The department also sponsors the American Foreign Policy Center.

Requirements for a Major

Thirty semester hours in history, as specified in the curriculum below, constitute a major in the Department of History. Every history major must have a minor, normally 21 hours in a related field, chosen in consultation with his or her advisor and, if necessary, the head of the department in which the student wishes to minor. Every major will consult with his or her advisor during each registration period and throughout the term as need arises. This program leads to the degree of Bachelor of Arts.

History Curriculum (BA)

Freshman Year
- English (GER) 6
- Mathematics (GER) 6
- Humanities (GER)
  - Communication 110 or 377 3
  - History 101, 102 (IER) 6
- Modern Language* 9

30

Sophomore Year
- Humanities (GER)
  - English 210, 211, or 212 6
- History 201, 202 6
- Modern Language* 3
- Sociology 201 3
- Geography 3
- Natural Sciences (GER) 6
- Fine Arts (GER) 3

30

Junior Year
- History (300 or 400-level courses) 9
- Natural Sciences (GER) 3
- Social/Behavioral Sciences (GER)
  - Political Science 201 and one other 6
  - Economics 215 3
- Minor 9

30

Senior Year
- History (300 or 400-level courses) 6

History 495 3
- Geography Elective 3
- Minor 12
- Electives 6

30

Total Semester Hours 120

(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

*Twelve (12) hour Modern Language requirement must be in the same language.

**See unit head for appropriate courses.

Requirements for a Minor in History

History 101, 102, 201, and 202 plus 9 hours of advanced history constitute a minor.

Requirements for the Interdisciplinary Minor in Public History

The minor in Public History provides an interdisciplinary education in history, in the history of art, culture, and the built environment, and in methods to effectively communicate that history. Course offerings cover content, theory, method, and techniques of research, documentation, and preservation of the past. This minor is well-suited for students who wish to enrich their personal background in the arts, humanities, and social sciences. In particular, this minor is designed for students who wish to prepare for careers or post-graduate study in arts and culture administration, museum studies, historical preservation, and archives and records management.

The minor consists of 21 hours: 12 hours of required coursework, including an internship, and 9 hours of electives chosen in consultation with the Public History advisor. Hours counted toward a student's major may not be counted toward the Minor in Public History. Required courses (12 hours) include: History 486, 489; English 465 or 482; and one specialized writing course selected from English 303, 336, 462; or JOUR 101, 102. Elective courses (9 hours) will be selected from the following: History (400-level, period or regional history courses: no more than 6 elective hours may be taken); English 303, 336, 462*; Journalism 101, 102, 220*, 311*; Architecture 211, 222, 233; Interior Design 242*, 316*; Art 266, 267, 466*, 468*; Archaeology transfer credit; Geography 205, 290, 321; Geographic Information Science 250, 350*; Sociology 205, 320 (or Statistics 320). NOTE: Course numbers with an "*" indicate the course has a prerequisite; student is responsible for ensuring they have met the necessary prerequisite coursework.

Mission - Social Sciences

As part of a liberal arts philosophy, the Department of Social Sciences at Louisiana Tech offers an education which provides a firm foundation for professional work or graduate school for majors in Geographic Information Science*, Geography, Sociology, and Political Science. The department affords students opportunities to sample knowledge from all fields; to develop writing, problem-solving, and interpersonal skills sought by employers; and to acquire the sort of liberal arts background which enriches a lifetime of political, social, cultural, and leisure-time activities.

*NOTE: Geographic Information Science is an interdisciplinary major offered through the Department of Social Sciences and the School of Forestry, with respective concentrations in Social Sciences or Natural Resources. Students wishing to pursue the Natural Resources concentration should consult the School of Forestry section of the University Catalog.

Objectives - Social Sciences

- to obtain the information and skills that are necessary prerequisites for rewarding and satisfying professional employment
- to acquire the substantive knowledge that allows a university graduate to be admitted to the company of educated men and women
- to learn to think, speak, and write clearly and effectively
- to achieve an appreciation for the ways in which we gain our understanding of other societies and to enable students to view themselves in other, wider contexts
- to gain proficiency in explaining and defending one's views
- to relate a liberal arts education to career and life decisions in a way that allows the individual to make discriminating moral choices

Requirements for a Major

Thirty semester hours of prescribed courses in geography, political science, or sociology constitute a major in those subjects in the Department of Social Sciences. Thirty-eight semester hours of prescribed courses in Geographic Information Science constitute a major in that subject. Minor requirements are determined by the department in which it is offered. Every department major will consult with his/her advisor during each registration period and throughout the term as necessary.

The degree of Bachelor of Arts is conferred upon completion of

any of these curricula: geography, political science, and sociology. The interdisciplinary degree of Bachelor of Science is conferred upon completion of the curriculum established for geographic information science.

Geographic Information Science Curriculum - Interdisciplinary (BS)

Freshman Year
Natural Sciences (GER)
Biological Sciences....3
Social/Behavioral Sciences (GER)
Economics....3
Social Sciences....3
English (GER)....6
Fine Arts (GER)....3
Mathematics (GER)....6
Concentration Courses*....5
29

Sophomore Year
Natural Sciences (GER)....6
Humanities (GER)
English 210, 211, or 212....3
History....3
Geographic Information Science 250, 260, 360....8
Concentration Courses*....9
Social/Behavioral Sciences (GER)....3
32

Junior Year
Humanities (GER)
Communication 110 or 377....3
English....3
Geographic Information Science 224, 341, 350, 371....11
Concentration Courses*....15
32

Senior Year
Geographic Information Science 460, 461, 462, 463, 464....16
Concentration Courses*....11
27

Total Semester Hours....120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

* Concentration Courses selected by student, in consultation with advisor from the following:

Social Sciences Concentration Requirements. GER and other non-GISC requirements for this concentration include the following: Natural Sciences electives (9 hours); Mathematics 100 or 101, and Statistics 200; English (9 hours)-English 101, 102, and 210, 211, or 212; Social Sciences (15 hours)-Geography 203, 205, Political Science 201, Sociology 201, and Economics 215; History 101 or 102 or 201 or 202; Communication 110; Fine Arts elective (3 hours); Directed electives (34 hours) chosen by student in consultation with advisor.

Political Science Curriculum (BA)

Freshman Year
English (GER)....6
Humanities (GER)
English 210 or 211....3
History 101, 102....6
Communication 110....3
Mathematics (GER)
Mathematics 100 or 101....3
Statistics 200 or Mathematics 125....3
Social/Behavioral Sciences (GER)
Geography....3
Natural Sciences (GER)....3
History 201....3
33

Sophomore Year
Fine Arts (GER)....3
Elective....3
English 212....3
Modern Language....6
History 202....3
Natural Sciences (GER)....3
Political Science 201, 302 (IER)....6
Political Science Elective....3
30

Junior Year
Natural Sciences (GER)....3
Social/Behavioral Sciences (GER)
Economics 215....3
Sociology 201....3
Sociology Elective....3
Modern Language....6
Philosophy....3
Political Science 345....3
Political Science Electives....6
30

Senior Year
Electives....15
Political Science Electives....12
27

Total Semester Hours....120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Requirements for the Pre-Law Concentration in Political Science. The pre-law concentration within political science is specifically designed to prepare students to succeed in law school. It consists of a political science major and an English or journalism minor, together with selected other required courses, core curriculum courses, and electives. Entering freshmen must have a minimum 22 composite on the ACT. A 2.5 GPA is required to transfer into the program and must be maintained by students in the program. Students are advised that a minimum GPA of 3.0 or higher is suggested as the GPA typically necessary for admission to law school. Students wishing to pursue this concentration should follow the political science curriculum outlined above with the following differences: History (101 and 102 or 201 and 202, instead of all four courses); Modern Language (6 hours); English or Journalism (must minor in either English or Journalism.); Law (must take Business Law 255, 356 and Political Science 426, 427).

Sociology Curriculum (BA)

Freshman Year
English (GER)....6
Modern Language*....9
Humanities (GER)
History....6
Mathematics (GER)
Mathematics 100, 101, or 102....3
Social/Behavioral Sciences (GER)
Sociology 201....3
Natural Sciences (GER)....6
33

Sophomore Year
Fine Arts (GER)....3
Humanities (GER)
English 210, 211, or 212....3
Communication 110....3
Mathematics (GER)
Mathematics 125 or 130....3
Natural Sciences (GER)....3
Sociology Elective....3
Economics 215....3
Electives....9
30

Junior Year
Social/Behavioral Sciences (GER)

Political Science 201 3
Sociology 320 3
Sociology Electives....9
Psychology 102....3
Geography or Geographic Information Science 6
Electives....6
30

Senior Year
Sociology 401 3
Sociology Electives....9
Social/Behavioral Sciences (GER)
Political Science 3
Statistics....3
Electives....9
27

Total Semester Hours....120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Requirements for a Minor in Geography

A minor in geography consists of 21 hours, of which 9 must be at the 300 or 400 level.

Requirements for a Minor in Political Science

A minor in political science consists of 21 hours, of which 9 must be at the 300 or 400 level.

Requirements for a Minor in Sociology

A minor in sociology consists of 21 hours, of which 9 must be at the 300 or 400 level.

Requirements for the Interdisciplinary Minor in Geographic Information Science

A minor in Geographic Information Science consists of 22 to 23 semester hours, depending upon course selection. Core Courses (14 semester hours): GISC 200, 217, 224, 250, 260, 350. Other courses include: (6 semester hours): Geography 340 or Geographic Information Science 340, Geography 370 or Geographic Information Science 370. Students pursuing this minor must take one quantitative methods course from the following: Agricultural Science 320, Geographic Information Science 360, Quantitative Analysis 233, Statistics 200, 402, or 405.

Requirements for the Interdisciplinary Minor in Gender Studies

The Gender Studies minor is an interdisciplinary minor that incorporates the approaches of multiple fields in order to provide students with a comprehensive understanding of the theoretical construct of gender and the political, social, historical, and cultural roles of men and women. The minor will be administered by the Gender Studies Program Coordinator in the Department of Social Sciences.

The minor in Gender Studies consists of 21 semester hours. A student minoring in Gender Studies must take Gender Studies (GST) 101: Introduction to Gender Studies, 3 semester hours credit, and an additional 18 hours chosen from the following courses: Art 459; English 402; English 475 (as approved by the Gender Studies Coordinator); Modern Language 489 (as approved by the Gender Studies Coordinator); History 475; Political Science 340; Political Science 420 (as approved by Gender Studies Coordinator); Psychology 469; Psychology 480; Sociology 308; Sociology 410.

Other courses, including internships, may be accepted by the Gender Studies Program Coordinator in consultation with the appropriate department head who wishes to offer such a course. A course will count toward the GST minor if at least 50 percent of the course material addresses gender issues and the course content incorporates contemporary gender scholarship.

Requirements for the Interdisciplinary Minor in Gerontology

(24 semester hours - at least 10 hours must be from courses 300 level or above.)

Core Courses (15 semester hours): Family and Child Studies 201 or Psychology 408 (3 semester hours); Health and Physical Education 406 (3 semester hours); Sociology 435 (3 semester hours); Family and Child Studies 447 (3 semester hours); Education 420; Health and Physical Education 112; Human Ecology 467, 477, 478, or 479; or Sociology Practica (3 semester hours).

Electives (9 semester hours): Select 9 hours from the courses listed below. Courses selected must be approved by your advisor. It is strongly suggested that ALL students elect either Psychology 475 or Sociology 436 that relate to death and grieving. Counseling 400; Family and Child Studies 210, 320, 400, 420; Food and Nutrition 203; Health and Physical Education 292, 401, 416; Psychology 474, 475, 480, 499; Sociology 308, 425, 436.

School of Literature and Language

English

The Department of English offers the Bachelor of Arts degree with a major in English.

Objectives and Career Opportunities

A student majoring in English studies literary history, literary forms and theory, and the wide variety of texts from English and American literature, as well as masterpieces from other literatures in English translation. One of the most intellectually rewarding of studies, an English curriculum will develop critical thinking skills, critical reading abilities and writing skills, and research skills which will prepare the graduate for success in a variety of fields. A degree in English is an excellent pre-professional major for fields such as law and medicine and provides the necessary platform for the MA and PhD in English for students who wish to enter secondary or university teaching. It can lead to careers in publishing, editing, advertising, public relations, or government service. Students choosing the technical writing concentration will find rewarding career opportunities in business, industry, and the professions. With many electives in the curriculum, English is one of the most flexible and useful of degrees.

Credit Examination

All students with an ACT English score greater than or equal to 26 or a SAT Verbal score greater than or equal to 590, who have not had any college-level English courses, can take a credit exam for English 101 offered through the Department of English at the beginning of each quarter.

Requirements for a Major in English

Students in the Department of English are required to follow the curriculum for the major in English leading to the degree of Bachelor of Arts in English. A major in English consists of 40 semester hours in English and an approved minor of 21 hours or 21 hours of electives primarily taken in liberal arts courses for a minimum total of 120 semester hours. Electives should be chosen in consultation with a faculty advisor and approved by the Director of the School of Literature and Language. English majors must have a 2.0 earned grade point average for graduation and no grade lower than a "**C**" in any required English class.

English Curriculum (BA)

Freshman Year
English (GER)....6
Humanities (GER)
English 210, 211 6
History 102 (IER) 3
Mathematics (GER) 6
Natural Sciences (GER)....3
Social/Behavioral Sciences (GER) 6
30

Sophomore Year
English 212 3
Modern Language* 6
History 201 or 202 3

Natural Sciences (GER) 6
Humanities (GER)
Communication 110 or 377 3
Social/Behavioral Sciences (GER) 3
Concentration Courses *** 3
Elective** 3
30

Junior Year
Fine Arts (GER) 3
Concentration Courses *** 12
Modern Language* 6
Electives** 9
30

Senior Year
Concentration Courses *** 16
Electives ** 14
30

Total Semester Hours 120

(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)
*Must be in the same language

**At least 21 hours of electives should be used for a minor or may be taken in liberal arts areas.

***Concentration courses selected by student in consultation with advisor from one of the following three concentrations:

Requirements for a Concentration in Literature. In addition to 12 hours of a Modern Language and electives, the literature concentration must include: English 307 (3); 303, 332, 336 or 400 (3); 437, 438, 439 or 440 (3); 413, 414, 455, or 456 (IER) (3); 403, 404, or 475 (3); 415 (3); 402, 408, 424, or 430 (3); 409, 410, 411, 412, or 429 (3); 406, 422, 480, or 482 (3); 434, 435, or 436 (3); and 450 (1).

Requirements for a Concentration in Technical Writing. In addition to 12 hours of a Modern Language and electives, the Technical Writing concentration must include: English 303 (3); 332 (3); 363 (3); 450 (3); 461 (3); 462 (3); 465 (3); 469 (3); 482, 467, or 464 (3); 459, 460, or 468 (3); and 307, 421, or other 400-level technical writing course (3).

Requirements for a Concentration in Creative Writing. In addition to 12 hours of a Modern Language and electives, the literature concentration must include: English 332 (3); 303, 307, 336, 400, 421, or 482 (3); 437, 438, 439 or 440 (3); 434, 435, or 436 (3); 413, 414, 455, or 456 (IER) (3); 384 or Theatre 371 (3); English 403, 404, or 475 (3); 415 (3) 484 (3); 409, 410, 411, 412, or 429 (3); 484 or Theatre 472 (3); and English 450 (3).

Requirements for a Minor in English

A minor in English consists of 21 semester hours of English courses. The plan of study must include English 101, 102, English 210 or 211, English 212, English 415, and 6 additional 300/400-level semester hours of English. Courses above the 100-level used for a Minor in Technical Writing cannot be used for a Minor in English.

Requirements for a Minor in Technical Writing

A minor in Technical Writing consists of 21 semester hours of English courses. The plan of study must include English 101, 102, 3 hours at the 200-level English 303, and 9 additional hours at the 300/400-level of any courses listed in the Technical Writing concentration. Courses above the 100-level used for a Minor in English cannot be used for a Minor in Technical Writing.

Modern Languages

The Department of Modern Languages offers the Bachelor of Arts degree with a major in Modern Languages and concentrations in French or Spanish.

Objectives and Career Opportunities

The Department of Modern Languages provides majors a curriculum designed to enable students to acquire competency in all the major dimensions of modern languages. A degree in Modern Languages will lead to careers in language teaching, translating and interpreting, and literary analysis as well as to opportunities in international business, diplomacy, and education.

Credit/Placement Examination

Students may earn credit for beginning and intermediate modern language courses (100 and 200 level) by passing credit/placement examinations. Students with three or more years of high school credit and native speakers should consult the department office before registration.

The modern language credit/placement examinations are scheduled to be given each quarter on the day before the first day of class. The exact time, place, and date of the examinations are listed on the calendar page of the quarterly class schedules. Students register for a credit/placement exam by enrolling in the E01 section of the appropriate 100 or 200 level course.

Students who have already completed credits in a modern language must not enroll in an elementary class in that language without first taking the appropriate credit/placement examination. Neither the credit/placement exams for the following courses, nor the courses themselves, are open to native speakers (those who completed high school taught in either Spanish or French): French (FREN) or Spanish (SPAN) 101, 102, 201, 202, 301, 302.

Modern Language Requirement

All students are advised to complete a year's sequence of their modern language courses without unnecessary interval between courses. A language requirement must be completed in the same language.

Students who have completed two years or more of high school French or Spanish with a "**C**" average or higher may not enroll in 101-level courses, but can begin their language study at the 102-level or place into a higher level course by taking the appropriate credit/placement exam. All students who complete French or Spanish 102 or who earn credit for French or Spanish 102 by exam will also automatically earn credit for French or Spanish 101.

Majors and Minors

Modern Language majors must have a 2.0 earned grade point average for graduation and no grade lower than a "**C**" in any required language class. Concentrations in French and Spanish consist of 30 hours above the 100 level. These programs lead to Bachelor of Arts degrees in Modern Language. Students pursuing the major should consult with the department office concerning specific plans available for use of electives, minors, and second areas to strengthen their major and career plans. Minors in French and Spanish consist of 21 hours in those languages and must include 101, 102, 201, 202, and three additional courses at the 300- or 400-level. Please note that French 428, Spanish 426 and 427 (French and Hispanic literature in English translation, respectively) cannot be used as part of the 30 hours of language courses for the major or as part of the 21 hours for the minor.

Native speakers who wish to *minor* in Modern Language must complete three 300-level courses other than 301 and 302. Only upon completion of these courses will credit for 101, 102, 201, and 202 be awarded. Native speakers who wish to *major* in a Modern Language must successfully complete eight 300- or 400-level courses other than 301 and 302. Only upon completion of these courses will credit for 101, 102, 201, and 202 be awarded.

Modern Language Curriculum (BA)

NOTE: At press time, the following curriculum was under final review for implementation. Check with the College of Liberal Arts, School of Literature and Language for updates (if any) resulting from that final review.

Freshman Year
English (GER) 6
Mathematics (GER) 6
Natural Sciences (GER) 6
Humanities (GER)
English 210, 211, or 212 3

Directed electives**.....6
Electives*.....3
30

Sophomore Year
Humanities (GER)
History 102 (IER).....3
Additional English (200-level or above).....3
Natural Sciences (GER).....3
Social/Behavioral Sciences (GER).....3
Directed electives**.....9
Electives*.....9
30

Junior Year
Humanities (GER)
Communication 110 or 377.....3
Social/Behavioral Sciences (GER).....6
Directed electives**.....6
Electives*.....15
30

Senior Year
Fine Arts (GER).....3
Directed Elective**.....12
Electives*.....15
30

Total Semester Hours.....120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

*All or part of the 42 hours of electives may be dedicated to a second major, or 21 of them may be dedicated to a minor.

**30 hours of Directed Electives will be chosen from one of the two concentrations listed below (French or Spanish). In addition, 3 hours of the Directed Elective must be chosen from one of the following courses: Economics 344; English 422; English/Modern Languages 470; Communication 222; History 413, 414, 418, 419, 420, 440, 442, 444; Political Science 325, 350.

Requirements for the Concentration in French: No later than the end of the sophomore year, students wishing to pursue a concentration in French leading to a BA in Modern Languages must include the following courses in their plan of study: French 201, 202, 301, 302, 304, 305, and 450, and 9 hours of upper-division French courses for a total of 30 hours.

Requirements for the Concentration in Spanish: No later than the end of the sophomore year, students wishing to pursue a concentration in Spanish leading to a BA in Modern Languages must include the following courses in their plan of study: Spanish 201, 202, 301, 302, 380, 381, and 450, and 9 hours of upper-division Spanish courses for a total of 30 hours.

Requirements for a Minor in International Studies.

The minor in International Studies consists of 21 hours. A student minoring in International Studies must take 6 hours in a Study Abroad Program, 6 hours of a Modern Language (at the 200-level or above), and an additional 9 hours from the list of approved courses for the International Education Requirement (IER) found on page 17 of this catalog, or courses approved by the Coordinator of the International Studies minor. A minimum of 9 hours must be at the 300- to 400-level. A student must earn a grade of "**C**" or better in each course applied toward meeting the requirement of a minor.

The minor is housed in the Department of Modern Languages and coordinated by a member of the faculty designated by the Dean of the College of Liberal Arts.

School of the Performing Arts

The School of the Performing Arts offers the following undergraduate degrees:

Department of Music

- Bachelor of Arts in Music with four concentrations: Liberal Arts, Performance, Music Education – Instrumental Grades K-12, or Music Education - Vocal Grades K-12.

Department of Theatre

- Bachelor of Arts in Communication with a concentration in Theatre: The theatre concentration is designed for those interested in the performance, technical, and management aspects of theatre training within a liberal arts education.

Mission

The Louisiana Tech University School of the Performing Arts provides comprehensive training in the fields of music, theatre, dance, and arts management, which connects the broad spectrum of historical and contemporary issues related to arts in product and process. It promotes the relationship between theory and practice, prepares professionals and teachers for leadership in national and international culture and art for the twenty-first century.

Objective

The School of the Performing Arts has as its primary purpose the education of students for careers as performers, teachers, and scholars in the performing arts fields of theatre, music, dance, and theatre management. It also recognizes the interrelationships of the academic disciplines and provides instruction in the performing arts as a humanistic study. Further, the School endeavors to meet its obligations of service and assistance to its various communities, both within and beyond the University environment. The School is dedicated to the advancement of performing arts culture both in the academic setting and in society.

Department of Music

Mission

The mission of the Department of Music is four-fold:

1. To lay the foundation for personal and professional growth in music performance, pedagogy, and education.
2. To foster the development of knowledge, skills, achievement, and integrity in the field of music.
3. To enrich the cultural life of the campus and surrounding communities.
4. To maintain the highest quality of academic, performance, and professional standards for students and faculty.

Objectives

The primary purpose of the Department of Music, accredited through the National Association of Schools of Music, is to provide its students with well-rounded preparation for the professional and teaching careers within the many branches of music. The Department strives to combine the high standards of performance characteristic of the conservatory, the scholarly approach to music of the academically oriented university, and the proficiency in pedagogical skills and educational research associated with the leading teacher training institutions, as well as rendering service to the University, local and state communities.

The specific department objectives (as set forth in the Louisiana Tech University Department of Music Handbook and curriculum guides) are designed to meet requirements as established by the Louisiana Board of Regents. The basic objectives of the Department of Music are:

- To assist students in becoming competent, qualified musicians by providing quality instruction and programs in music.
- To provide a variety of experiences that will prepare prospective musicians/music teachers to assume their professional roles in the fields of music performance and/or music education.
- To provide educational experiences that will develop the individual's knowledge in both breadth and depth.
- To provide consultation service, workshops, seminars, and extension programs for teachers, administrators, school boards, and other community members interested in the development of music and music education through lecture/demonstrations, clinics, recital programs, and adjudicators for district and state music fes-

tivals.

- To evaluate on a continuing basis the curricula, course offerings and services of the Department of Music in light of new knowledge, career requirements, and opportunities for college graduates.

For further details, visit the Department of Music Web site at music.latech.edu or contact the Coordinator of Music.

Requirements for Admission and Degrees

Entering first-year and transfer music majors are required to audition in the major performance medium prior to acceptance. The audition may be on site or via recording. Contact the Coordinator of Music for further details. Transfer students must also take placement exams in piano, music theory, and music history. Credit for music coursework from other institutions and placement in the curricula will be based on the scores achieved on placement exams.

All students are enrolled in the College of Liberal Arts as music majors and follow the appropriate curriculum corresponding to the academic year of entry. In addition to completion of the requirements of the music degree and chosen concentration, students must complete the University's general education requirements (GER).

Requirements for Music Majors

Students selecting a major in music will be required to:

- Select a major instrument from the following: brass, woodwinds, percussion, guitar, keyboard, strings or voice.
- Music majors must have no grade lower than a "**C**" in any required music class.
- Pass the piano proficiency requirements by the end of the 6th quarter of study.
- Complete 10 quarters of MUAP 100 -- Recital Hour.
- Attend specified departmental and School of the Performing Arts performances each quarter.
- Perform during Recital Hour: Performance Concentration, 3 times each academic year; Liberal Arts and Education Concentrations, 2 times each academic year. In all cases, only one chamber ensemble performance may be counted.
- Enroll each quarter in the major ensemble that corresponds to the students primary applied instrument (except students participating in student teaching). Major ensembles include Concert Choir, Wind Ensemble, Chamber Singers, Concert Band, and Marching Band. Students whose primary applied instrument is guitar or piano typically enroll in a vocal ensemble, but may enroll in an instrumental ensemble if accepted by audition by the director.
- Participate in juries at the end of each quarter or as required by the individual studio.
- Apply for upper division status after 6 quarters of study. (See private teacher for form.) Prerequisites: Pass all parts of the proficiency exam in piano; vocal majors must pass all three diction courses.
- Students must be enrolled in Applied Study (MUPV 400-level) concurrently with enrollment in Undergraduate Recital (MUAP 399 or 499).

Students transferring concentrations within the Department (Liberal Arts to Performance, flute to clarinet, etc.) must audition for the new concentration and adopt the requirements of the new curriculum It is reasonable to assume that a music student accepts full responsibility for knowing the policies and regulations of the School of the Performing Arts and Department of Music requirements relevant to his or her individual degree program.

Requirements for a Minor in Music

The Music Minor program is designed for qualified students who have a strong interest in music as a secondary subject. Students desiring to pursue a music minor must meet with a Music Department advisor for specific details and to fill out appropriate paperwork. The minor consists of 21 hours as follows: Music Theory 101, 102, 103 - 6 hrs; Major Ensemble (Band or Choir) -1 hr; Music Applied Private Lessons (MUPV) - 4 hrs (must be on the same instrument); students must also register for MUAP 100 concurrently with private lessons; MUPD 300 - 1 hr; music electives - 9 hrs to be selected from: MUHS 301 (2), 303 (2), 410 (3), 430 (3), 431 (2), 432 (3), 433 (3), 450 (3), 307 (2) or other music courses selected in consultation with the music advisor. This minor does not meet teacher certification requirements.

Ensembles

All music department ensembles are open to qualified students regardless of major. Membership is by audition and can be arranged by contacting the appropriate director or conductor.

Additional information can be found at music.latech.edu.

- Vocal Ensembles: University Concert Choir, Chamber Singers; Opera Workshop
- Instrumental Ensembles: Marching Band of Pride; Hoop Troop; University Wind Ensemble; University Symphonic Band; University Concert Band; University Jazz Ensemble; Percussion Ensemble; Low Brass Ensemble; Woodwind Choir; Chamber Orchestra; Brass Quintet; Guitar Ensemble; Piano Ensemble; various chamber ensembles.

Music Curriculum (BA)

The Department of Music offers the Bachelor of Arts in Music with a choice of four concentrations (Liberal Arts, Performance, Instrumental Education, and Vocal Education) that provide the necessary coursework to prepare students for various career options in music. All music students must confer once each quarter with his/her advisor to check academic status and to plan future work,

The **Liberal Arts Concentration** is designed for the student who has a strong interest in music and also wishes to pursue a minor in another area. For their minor, music students will take 21 hours in another subject (as outlined in this Catalog). Students choosing the Liberal Arts concentration are required to take four quarters in the same Modern Language. Total Credit Hours: 125 Instrumental, 128 Vocal.

The **Performance Concentration** is designed for the student who is interested in the performing and pedagogical aspects of their training in their major instrument or voice. Students choosing the performance concentration are required to take a minimum of three quarters in the same Modern Language. Total Credit Hours: 131 Instrumental, 134 Vocal. Students must pass a performance jury at the end of the first year.

The **Education Concentrations** are designed for the student interested in becoming certified by the state of Louisiana to teach vocal or instrumental music education at the K-12 level. Students choosing this concentration are advised to read the requirements for admission to the Teacher Education Program as outlined in the College of Education section of this Catalog and discuss those requirements with the Associate Dean for Undergraduate Studies, College of Education. Total Credit Hours: 138

General Education Requirements (GER):

English (GER)
- English 101, 102 6

Mathematics (GER)
- Mathematics 101, 112 or 125 6

Natural Sciences(GER)[1] 9

Humanities (GER)
- History 102 (IER) 3
- Communication 110 or 377 3
- English 210, 211, or 212 3

Fine Arts (GER) 3

Social/Behavioral Sciences (GER) 9

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(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Core Music Classes:

Music Applied Classes & Recitals (Vocal Diction[3])
- 232, 233, 234 3

Music Theory 101, 102, 103, 201, 202, and 203 12

Music History & Literature 301, 302, 303.....6
Music Applied Private Lessons – Major[4&5].....9
Music Applied Classes & Recitals 398[10] or 399.....0
Music Applied Private Lessons – Minor 111, 112, 113.....3
Music Ensembles – Major[6].....10
Music Applied Classes & Recitals 100 (10 quarters).....0
43

GER, Core, and Concentration NOTES:

1. Must include both physical & biological science with at least 6 hours from a two-quarter sequence.
2. Performance and Liberal Arts concentrations only.
3. Vocal majors only.
4. Must complete 6 separate quarters of applied study at the 200-level and at the 400-level on the same instrument. (5 quarters at the 400-level for Education concentrations.)
5. Performance majors will take 2xxB for sophomore year and 4xxB for 6 quarters for a total of 21 hours.
6. Must complete 6 separate quarters of a major ensemble at the 200-level and the remaining hours at the 400-level.
7. Three hours count towards Humanities (GER).
8. Must complete 8 of the 9 method classes, and not take the method class which includes their major instrument.
9. Requires 6 hours of applied piano minor beyond class piano.
10. Required for the Composition concentration.
11. During the final year of composition lessons (MUPV 491) students must produce a choir composition and a band or orchestra piece.

Requirements for the Composition Concentration. Modern Language*[7] (9); Electives (1); Music Applied Private Lessons – Compositions 291 (3), 491 (6)[11]; Music Theory 302, 303, 304, 401, 403, 404 (18); Music technology 302, 303 (6); Music Applied Private Lessons – Minor (6)[9]; Music Ensembles – Major[6] (2); Music Pedagogy 300, 301, or 302 (3).

Requirements for the Liberal Arts Concentration. Modern Language*[7] (9); Minor Subject (21); Electives (1); Music Applied Private Lessons – Major[4] (3); Music Applied Private Lessons – Minor (1); Music Ensembles – Major[6] (2); Music Electives (6); Music Technology 301 or 302 (3).

Requirements for the Performance Concentration. Modern Language*[7] (9); Electives (1); Music Theory 301, 302, 401, 402 (12); Music Applied Private Lessons – Major[4&5] (12); Music Applied Classes & Recitals 499 (Full Recital) (0); Music Applied Private Lessons – Minor (4); Music Ensembles – Major[6] (2); Music Pedagogy 300, 301, or 302 (3); Music Pedagogy (4) Music Electives (2); Music Technology 301 or 302 (3).

Requirements for the Music Education - Instrumental Concentration.** Natural Science (GER) Biology 101, 102 (6) and Physics 205 (3) or Geology 205 (3); Social Sciences (GER) Psychology 205, 206, 207 (9) and Political Science 201 or Geography 205 (3); Music Theory 302, 402 (6); Music History & Literature 306 or 307 (2); Music Pedagogy 331, 351, 352, 361, 362, 363, 371, 372, 381[8] (8); Music Pedagogy 300, 302, 464 & 466 (9); Education Curriculum & Instruction 125, 400, 401, 403, 416, 434, 435, and 471 (28).

Requirements for the Music Education - Vocal Concentration.** Natural Science (GER) Biology 101, 102 (6) and Physics 205 (3) or Geography 205 (3); Social Sciences (GER) Psychology 205, 206, 207 (9) and Political Science 201 or Geography 205 (3); Music Theory 302, 402 (6); Music Ensembles-Major[6] (1); Music History & Literature 306 or 307 (2); Music Pedagogy 300, 301, 311, 331, 464 & 465 (13); Education Curriculum & Instruction 125, 400, 401, 403, 416, 434, 435, and 471 (28).

** In addition to all degree course work listed in the education concentrations, students choosing one of the education concentrations must complete all of the pedagogical education requirements found in the Bachelor of Science in Education, Multiple Levels Gr K-12 certifying curriculum, located in the College of Education section of the Louisiana Tech University Catalog.

Department of Theatre

Admission to the Theatre Program Concentration. Auditions/interviews for placement within the program are required. These occur prior to enrollment or within the first two weeks on campus. Auditions may take place in a variety of formats: prepared performance pieces, portfolio presentation, or interviews. Students may contact the Coordinator of Theatre or the Director for the School of the Performing Arts for additional information.

Requirements for the Theatre Concentration. Theatre students will enroll in the Theatre Practicum (THTR 260/460) for no less than 7 quarters before graduating. Boards will be held during the year so that the faculty can evaluate each student's progress and set goals for the future. Students are required to attend weekly major/minor meetings, which serve as a forum for information, discussion of issues, and notification of departmental concerns and professional opportunities.

Requirements for a Minor in Theatre

A minor in Theatre is designed for those who have a strong interest in Theatre as a secondary subject. A minimum of 21 hours is required: Theatre 100, 101, 210, 260(3), and 9 additional hours to be chosen from 300- or 400-level theatre courses.

Department of Professional Aviation

The Department of Professional Aviation is accredited by the Aviation Accreditation Board International (AABI). AABI is an international aviation accreditation board whose mission is to promote the advancement of aviation accreditation worldwide.

The Department of Professional Aviation offers the Bachelor of Science degree with majors in:

- Professional Aviation
- Aviation Management (available concentration in Aviation Maintenance Management)

Mission/Objectives

The mission of the Department of Professional Aviation is as follows: The Professional Aviation curriculum provides two accredited professional degree programs in Professional Aviation and Aviation Management. Professional Aviation and Aviation Management programs focus on setting a standard of excellence and to provide graduates with the knowledge, skills, experience, and attitudes necessary to shape and lead the aviation industry in the 21st century.

The program educational objectives of the Professional Aviation Program are to produce graduates with several defining abilities:

- Ability to pursue aviation careers beginning with entry-level careers in industry or government.
- Ability to solve complex and/or technical problems using mathematics, science, critical thinking, and emerging technologies related to aviation.
- Ability to function effectively and ethically individually and in team situations.
- Ability to pursue continuing education /life-long learning through graduate studies or advanced aviation certificates, ratings, or training in related aviation fields.
- Ability to communicate effectively in written and oral form.

The program educational objectives of the Aviation Management Program are to produce graduates with several defining abilities:

- Ability to pursue business/aviation management careers in industry or government.
- Ability to solve complex and/or technical business and aviation management problems using mathematics, science, critical thinking, and emerging technologies related to business and aviation management.
- Ability to function effectively and ethically individually and in team situations.
- Ability to pursue continuing education /life-long learning through graduate studies or continuation training in related aviation management and business fields.
- Ability to communicate effectively in written and oral form.

Requirements for Admission

The student is responsible for presenting proof of a current physical examination administered by a Federal Aviation Administration designated medical doctor.

Requirements for a Major in Professional Aviation

- A major in Professional Aviation consists of 54 semester hours of aviation courses. Every Professional Aviation major is required to minor in Aviation Management in order to provide a broader career enhancement option.
- A student must earn a grade of "**C**" or better in each professional aviation core courses as well as courses that are applied toward meeting the minor requirements.
- Students must complete the following aviation certificates/ratings for graduation: private pilot, instrument pilot, commercial pilot, and, flight instructor (CFI, CFII, or MEI).
- For students transferring two or more FAA certifications/ratings, a minimum of two (2) FAA pilot certificates must be achieved in the Louisiana Tech University Department of Professional Aviation program to meet University academic requirements for graduation.
- If the student does not transfer in any prior FAA certificates, they must complete all pilot certificates/ratings at Louisiana Tech University.

Professional Aviation Curriculum (BS)

Freshman Year
English (GER) 6
Mathematics (GER)
  Mathematics 101 and 125 6
Humanities (GER)
  English 210, 211, or 212 3
Social/Behavioral Sciences (GER)
  Psychology 102 3
  Geography 205 or 210 (IER) 3
Professional Aviation 101, 102, 110, 111 8
29

Sophomore Year
Humanities (GER)
  History 201 or 202 3
Natural Sciences (GER)
  Biological Science 101 3
  Physics 205, 206 6
Professional Aviation 240, 241, 242, 243 8
Professional Aviation 200, 239 6
Fine Arts (GER) 3
Social/Behavioral Sciences (GER) 3
32

Junior Year
Humanities (GER)
  Communication 377 3
  English 303 3
Professional Aviation 303, 322, 331, 340 12
Professional Aviation 342, 343, 344, 345 4
Professional Aviation 223, 315, 320 (Minor) 9
31

Senior Year
Professional Aviation 316, 400, 411, 414, 480 10
Professional Aviation 491, 495 6
Professional Aviation 332, 407, 440, 490 (Minor) 12
28

Total Semester Hours 120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Special Flight Fees

Additional fees are required for each flight course. A schedule of these fees can be obtained by writing the Department, or at www.aviation.latech.edu.

Requirements for a Minor in Professional Aviation

Non-aviation majors may obtain a minor in Professional Aviation. This minor consists of completion of the requirements for a Private Pilot Certificate plus 13 semester hours of upper-level aviation courses approved by an advisor.

Requirements for a Major in Aviation Management

A major in Aviation Management consists of 45 semester hours of aviation and a solo flight. The curriculum concentrates on business practices designed to prepare students for managerial positions throughout the aviation industry. The aviation management curriculum requires a minor in Business Administration. Courses applied toward the minor must be completed with the grade of *C* or higher.

Aviation Management Curriculum (BS)

Freshman Year
English (GER) 6
Mathematics (GER)
  Mathematics 101 3
Natural Sciences (GER)
  Biological Science 101 3
Social/Behavioral Sciences (GER)
  Economics 201, 202 6
  Geography 205 or 210 (IER) 3
Professional Aviation 101, 102 6
27

Sophomore Year
Humanities (GER)
  History 201 or 202 3
  English 210, 211, or 212 3
Natural Sciences (GER)
  Physics 205 and 206 6
Mathematics (GER)
  Mathematics 125 3
Fine Arts (GER) 3
Accounting 201, 202 6
Economics 202 3
Professional Aviation 223 3
30

Junior Year
Humanities (GER)
  English 303 3
  Communication 377 3
Management 310 3
Marketing 300 3
Computer Information Systems 310 3
Professional Aviation 239, 315, 316, 320, 322, 332 18
33

Senior Year
English 363 3
Finance 318 3
Business Law 255 or 447 3
Management 470 3
Professional Aviation 407, 440, 490, 491, 495, 496 18
30

Total Semester Hours 120
(GER): General Education Requirement (pg. 15)
(IER): International Education Requirement (pg. 15)

Requirements for a Minor in Aviation Management:

Professional Aviation Majors. The Aviation Management minor for Professional Aviation majors consists of 21 hours of Aviation Management courses: Professional Aviation 223, 315, 320, 332, 407, 440, 490.

Non-Aviation Majors. The Aviation Management minor for non-aviation majors consists of 21 hours of aviation management courses: Professional Aviation 101, 223, 315, 322, 440, 491 and a choice of one of the following: Professional Aviation 239, 303, 316, 320, 332, 407, or 490.

Requirements for the Aviation Maintenance Management Concentration

in Aviation Management. The Aviation Maintenance Management concentration is specifically designed to prepare graduates to succeed as aviation maintenance managers. A student in this concentration would be required to transfer in the Federal Aviation Administration (FAA) Airframe and Power Plant (A&P) certificate (worth 25 semester credit hours of appropriate transfer coursework, as determined by the Chair, Department of Professional Aviation) and an Associate's degree from an accredited and approved post-secondary institution. NOTE: FAA A&P certificates earned by active duty, reserve, and national guard military members as part of their military training, as documented by FAA and their respective military transcripts (e.g. AARTS, CCAF, etc.), will be accepted. The student is required to complete the minor in Business Administration with the following business core courses: Accounting 201, 202; Economics 202; Computer Information Systems 310; Management 310; Marketing 300; and Finance 318.

Chapter 15 – The Graduate School

Administration

Dean
Sheryl S. Shoemaker

Address

Wyly Tower, Room 1642
1310 Railroad Avenue #7923
Ruston LA 71272
(318) 257-2924
and visit www.latech.edu/graduate_school

Mission

The Graduate School offers the administrative structure, leadership, and guidance necessary to support graduate education at Louisiana Tech University. The staff members of the Graduate School work with the Vice President for Academic Affairs, the Graduate Council, the academic deans, and the graduate programs and faculty to help provide students with a superior educational and research environment within which to pursue rigorous, challenging, and relevant graduate and professional degrees.

Administration

The Dean of the Graduate School administers and coordinates the graduate programs of the University. Graduate instruction is supervised by the appropriate academic deans, directors of graduate studies, department heads, and graduate faculty under policies set forth by the University of Louisiana System and the Graduate Council chaired by the Dean of the Graduate School. The President of the University is the final local authority in the operation of the graduate programs.

Student Responsibility

Each graduate student must assume the responsibility for becoming knowledgeable concerning Graduate School regulations and requirements. Ignorance of these requirements and regulations, incorrect statements or advice from faculty or students, or misunderstanding of these procedures will not be accepted as cause for waiving any requirement or regulation.

Graduate Degrees Offered

College of Applied and Natural Sciences

Master of Health Informatics
- Health Informatics

Master of Science
- Biology
- Nutrition and Dietetics
- Molecular Sciences and Nanotechnology-Interdisciplinary

Doctor of Philosophy
- Molecular Sciences and Nanotechnology-Interdisciplinary

College of Business

Master of Business Administration
- Business Administration (with concentrations in Accounting, Computer Information Systems, Economics, Finance, Information Assurance, Innovation, Management, Marketing, Quantitative Analysis, or Telecommunication)
- Master of Professional Accountancy

Doctor of Business Administration
- Business Administration (with concentrations in Accounting, Computer Information Systems, Finance, Management, Marketing, or Quantitative Analysis)

College of Education

Master of Arts
- Industrial/Organizational Psychology

Master of Arts Counseling and Guidance
- Counseling and Guidance (with concentrations in Clinical Mental Health Counseling, Human Services, Orientation and Mobility, Rehabilitation Teaching for the Blind, or School Counseling)

Master of Arts in Teaching
- Early Childhood Education Grades PK-3
- Elementary Education and Special Education Mild/Moderate Grades 1-5
- Elementary Education Grades 1-5
- Middle School Education Grades 4-8 (with concentrations in Mathematics Grades 4-8, or Science Grades 4-8)
- Secondary Education and Special Education Mild/Moderate Grades 6-12 (with concentrations in English, General Science, Mathematics, or Social Studies)
- Secondary Education Grades 6-12 (with concentrations in Agriculture Education, Business Education, English Education, General Science/Biology Education, General Science/Chemistry Education, General Science/Earth Science Education, General Science/Physics Education, Mathematics Education, Social Studies Education)
- Special Education Early Interventionist: Birth to Five
- Special Education: Visually Impaired

Master of Education
- Curriculum and Instruction (with concentrations in Adult Education, Biology, Chemistry, Early Childhood, Early Intervention/Special Education, Economics, English, History, Library Science, Mathematics, Physics, Reading, Special Education Mild/Moderate, Technology, or Visually Impaired).
- Educational Leadership

Master of Science
- Kinesiology (with concentrations in Administration of Sport and Physical Activity, or Sports Performance)

Doctor of Education
- Education Leadership (with concentrations in Educational Leadership, or Higher Education Administration)

Doctor of Philosophy
- Counseling Psychology
- Industrial/Organizational Psychology

College of Engineering and Science

Master of Science
- Applied Physics
- Computer Science
- Engineering & Technology Management (with concentrations in Engineering Management, or Management of Technology)
- Engineering-Interdisciplinary (with concentrations in Biomedical Engineering, Chemical Engineering, Civil Engineering, Communication Systems, Electrical Engineering, Industrial Engineering, or Mechanical Engineering)
- Mathematics
- Microsystems Engineering
- Molecular Sciences & Nanotechnology - Interdisciplinary

Doctor of Philosophy
- Biomedical Engineering
- Computational Analysis and Modeling –Interdisciplinary
- Engineering – Interdisciplinary (with concentrations in Cyberspace, Engineering Education, Engineering Physics, Micro and Nanoscale Systems, or Materials and Infrastructure Systems)
- Joint MD/PhD with LSUHSC-Shreveport
- Molecular Sciences & Nanotechnology - Interdisciplinary

College of Liberal Arts

Master of Architecture
- Architecture

Master of Arts
- English (with concentration in Literature or Technical Writing)
- History
- Speech (with concentrations in Speech Communication or Theatre)
- Speech Pathology

Master of Fine Arts
- Art (with concentrations in Graphic Design, Photography, and Studio)

Doctor of Audiology
- Audiology

Graduate Certificates Offered

College of Applied and Natural Science
- Graduate Certificate in Dietetics

College of Business
- Graduate Certificate in Information Assurance

College of Education
- Graduate Certificate in Academically Gifted
- Graduate Certificate in Adult Education
- Graduate Certificate in Computer Literacy Education
- Graduate Certificate in Early Childhood Education Grades PK-3
- Graduate Certificate in Higher Education Administration
- Graduate Certificate in Reading Specialist
- Graduate Certificate in School Librarian
- Graduate Certificate in Special Education Mild/Moderate Elementary Education Grades 1-5
- Graduate Certificate in Special Education Mild/Moderate Secondary Education Grades 6-12
- Graduate Certificate in Special Education-Early Intervention: Birth-5
- Graduate Certificate in Teacher Leader Education
- Graduate Certificate in Technology Facilitator Grades K-12
- Graduate Certificate in The Dynamics of Domestic and Family Violence – Interdisciplinary
- Graduate Certificate in Visual Impairments–Blind Education

College of Engineering and Science
- Graduate Certificate in Communications Systems

College of Liberal Arts
- Graduate Certificate in Technical Writing and Communication

Immunization Policy

Louisiana law (Act 1047) requires all new students born after December 31, 1956, to provide proof of immunization against measles/mumps/rubella (MMR) and tetanus/diphtheria (TD). Louisiana law (Act 251) requires first-time freshmen to submit proof of immunization against meningitis. Forms for documenting immunization or establishing an exemption to this requirement are available from the Office of Admissions. Proof of immunity includes documentation of
- two measles vaccines administered after January 1, 1968, one of which must have been given on or after the first birthday.
- a mumps and rubella vaccine.
- meningitis vaccine.
- a tetanus/diphtheria combination within the past 10 years.

In the event of an outbreak of measles, mumps, meningitis, or rubella, students who have not provided documentation of immunity will be excluded from attendance of campus activities, including classes, until the appropriate disease incubation period has expired.

Graduate School Admission

Certain minimum admission standards are established by the Graduate Council for the University. Each academic college has the prerogative to be more selective and to establish higher standards for its respective graduate students. Deadlines for additional requirements may vary by program. Each student is responsible for becoming knowledgeable of Graduate School and specific program requirements and policies.

A student will not receive graduate credit for any course taken unless he or she has complied with the admission procedures and has been accepted for admission to the Graduate School. Admission to Graduate School does not necessarily mean admission into a specific degree program. Students may attend class only after completion of advisement and registration, which includes payment of tuition and fees.

Requirements: Graduate School applicants must satisfy all general admission requirements for Louisiana Tech University.

Applications: All application forms for admission may be completed online at www.latech.edu/graduate_school. Admission applications with all required fees must be received in the Graduate School at least 30 days in advance of registration for the session in which the student expects to enroll. Any credentials missing before the end of student's first complete term of enrollment *will result in the student not receiving graduate credit*, nor will an official Louisiana Tech academic transcript be provided to the student.

International applications: International students should submit an admission application far enough in advance of deadlines to allow sufficient processing time and make the necessary travel arrangements to arrive on campus prior to registration and must attend an international student orientation. Upon arrival at Louisiana Tech, an international graduate student *must* enroll in the program he or she was admitted to for a minimum of *one quarter*. After fulfilling this requirement, a student may apply for admission to another academic program at Louisiana Tech University by following the Graduate School's admission procedures.

Transcripts: All official transcripts must be received in the Graduate School at least 30 days in advance of registration for the session in which the student expects to enroll. Transcripts must be mailed directly from the college/university to Louisiana Tech Graduate School.

Test scores: All official standardized test scores must be on file in the Graduate School at least 30 days in advance of registration for the session in which the student expects to enroll. Scores must be mailed directly from official testing centers (ETS, IELTS, GMAT, etc.) to Louisiana Tech Graduate School.

Admission: Official admission notification will be mailed to each student by the Graduate School.

If permission to enter the Graduate School is given prior to graduation, this admission is automatically withdrawn if the bachelor's degree is not awarded before the date of registration.

Registration: Students should follow registration procedures outlined on the Louisiana Tech web site (BOSS) or in the quarterly Schedule of Classes ("The Racing Form") available from the University Registrar during each registration period.

Persons previously banned for disciplinary reasons or misconduct or criminal activities cannot register without the specific approval of the Dean of the Graduate School and the Vice President for Student Affairs.

Transfer Admissions

Students desiring to transfer to the Graduate School of Louisiana Tech University must meet the same requirements as entering graduate students. They must be in good academic standing and eligible to return to the previous institution attended.

International Student Transfer

International Students must meet the academic criteria for transfer admission. The International Student Office will administer the immigration transfer process for international students arriving from other U.S. schools including issuing a new I-20 immigration document. Students usually receive the I-20 when they arrive on campus so that the transfer can be completed legally and safely. Students must have an official from the previous school sign a "Foreign Student Advisor Transfer Report" and provide it to the Louisiana Tech University International Student Office before their arrival.

Upon arrival at Louisiana Tech, an international graduate student

must enroll in the program he or she was approved for and admitted to for a minimum of one quarter. After fulfilling this requirement, a student may apply for admission to another academic program at Louisiana Tech University by following the Graduate School's admission procedures.

Transcript Submission Requirements

Policies governing the submission of transcripts for all graduate students are as follows:

- Transcripts must be mailed or electronically transmitted directly from the college/university to Louisiana Tech Graduate School and must bear the stamp/seal of the issuing institution. Transcripts must be from a regionally accredited college/university. Accreditation status is verified using the American Council on Education publication Accredited Institutions of Postsecondary Education, and through use of the U.S. Department of Education Database of Accredited Postsecondary Institutions and Programs.
- Transcripts are accepted from institutions accredited by the following associations:
  - Middle States Association of Colleges and Schools, Commission on Higher Education
  - Northwest Commission on Colleges and Universities
  - North Central Association of Colleges and Schools, Higher Learning Commission
  - New England Association of Schools and Colleges, Inc., Commission on Institutions of Higher Education
  - Southern Association of Colleges and Schools, Commission on Colleges
  - Western Association of Schools and Colleges, Accrediting Commission for Community and Junior Colleges
  - Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities.

Masters: Students must submit *all* official transcripts (undergraduate and graduate) for evaluation of eligibility for these programs.

Doctoral: Students must submit *all* official transcripts (undergraduate and graduate) for evaluation of eligibility for these programs.

Transient and ICP: Students must submit an official transcript verifying that they are actively pursuing an advanced degree at another institution and are in good academic standing at the institution.

Life-Long Learning: Students must provide an official baccalaureate degree-posted transcript. Teachers may use their state certification for admission in lieu of an official transcript.

Graduate Certificate: Students must submit only an official baccalaureate degree-posted transcript.

Complete and official transcripts from all colleges/universities attended, whether credit was earned or transferable, must be received by Louisiana Tech directly from the institution. Students who fail to acknowledge attendance at any college or university in which they have been registered are subject to having their admission canceled or, if enrolled, to being dismissed from Louisiana Tech without refund of fees. Evaluations concerning probation, suspension, grades, grade point average, hours pursued, and hours earned are based on Louisiana Tech's standards regardless of prior determinations at the other institutions attended. No student is admitted if under academic or disciplinary suspension from another college or university. No credit earned while under suspension from another institution is accepted toward a degree at Louisiana Tech.

Graduate Non-Degree Admission Categories

All non-degree admission categories are subject to the minimum requirements for conditional admission.

Graduate Certificate Program

Students wishing to enroll in this non-degree category must complete a Graduate School application, pay the application fee, provide an official baccalaureate degree-posted transcript, meet course prerequisites, and understand that they ***are not admitted to a graduate degree program***. Students must maintain the minimum grade standards set for Conditional admission to the Graduate School. See section on Grade Requirements for Graduate Students Admitted Conditionally. Each academic college has the prerogative to set higher standards for its respective graduate students.

A Graduate Certificate Program is a set of pre-determined subject-matter-specific graduate courses pursued to enhance an individual's mastery of a subject area without completing a master's program. As such, certificate programs are not shortened versions of existing master's programs.

Successful completion of a Graduate Certificate Program results in the receipt of a certificate that specifies graduate certification in a specific area and is accompanied by the appropriate posting on the official Louisiana Tech University Certificate transcript.

Life-Long Learning

Students wishing to enroll in this non-degree category must complete a Graduate School application, pay the application processing fee, must meet minimum Undergraduate Cumulative Grade Point Average (UGPA) requirements for Conditional admission, provide an official baccalaureate degree-posted transcript, meet course prerequisites, and understand that they ***are not admitted to a graduate degree program***. Teachers may use their state certification in lieu of an official transcript for admission to the Life-Long Learning category. Each academic college has the prerogative to set higher standards for its respective graduate students. There is no limit to the number of courses that students may take in this category as long as they maintain the minimum grade standards set for Conditional admission to the Graduate School. See section on Grade Requirements for Graduate Students Admitted Conditionally.

Students may apply for a graduate degree program at any time by completing a Graduate School application and by meeting the admission requirements for that specific program. After admission to a graduate degree program, students may file a written request that up to a maximum of 12 total semester hours of graduate credit earned under Life-Long Learning be applied to their graduate degree program Plan of Study by special permission of the College and Committee Chairperson assigned to the student's degree program. These courses will be specifically identified on the Plan of Study.

Transient

Students admitted to a graduate program at another institution wishing to take a course(s) for transfer credit may be allowed to take such a course(s) with the approval of the Director of Graduate Studies in the college in which he or she would normally enroll. Students applying for *transient* status must

a) Submit an official transcript certifying that they are actively pursuing an advanced degree at another institution and

b) Be in good academic standing at that institution.

A maximum of 12 hours of transient credit will be allowed. Transcripts shall note that such credit is associated with the transient admission. ***Transient admission is good for one quarter only and students must reapply for any subsequent quarters***.

Inter-Institutional Cooperative Program (ICP)

Students may enroll in graduate courses through the ICP program between Louisiana Tech and Grambling State University. Students participating in the ICP program must apply for ***transient status*** and follow the appropriate admission procedures. ***Transient admission is good for one quarter only***. Courses taken through the ICP program must be included on a student's approved Plan of Study in order to count towards degree requirements, and all course prerequisites must be met. Students not in good standing at one university are not eligible to enroll in graduate courses at the other university. Additional information may be obtained from the Office of the Registrar, 318/257-2176.

Residency Regulations for Tuition Purposes

The residence status of an applicant or student is determined in accordance with the University of Louisiana System regulations and is based upon evidence provided in the application for admission and related documents. Residency status is not determined for students reg-

istered for 3 credit hours or less. All students classified incorrectly as residents are subject to reclassification and payment of all non-resident fees not paid. If incorrect classification results from false or concealed facts by the student, the student is also subject to University discipline. Students should refer to the conditions used to determine residency status on the Graduate School website or under the "Undergraduate Admissions" heading at the beginning of this Catalog for specific residency classification regulations. Any appeals of residency classification should follow the guidelines provided. Graduate applicants should address their residency appeal to the Dean of the Graduate School.

Graduate Degree Admission Categories

Unconditional Admission

Unconditional admission requires that the applicant must have earned a bachelor's degree or its equivalent from a regionally accredited American university or from a foreign institution of acceptable and verifiable standing. Accreditation status is verified using the American Council on Education publication *Accredited Institutions of Postsecondary Education,* and through use of the *U.S. Department of Education Database of Accredited Postsecondary Institutions and Programs*. The final decision rests with the Dean of the Graduate School and is based upon the recommendation of the admissions officials of the academic college the student wishes to enter. The following are minimum requirements for unconditional admission consideration:

- Minimum 2.50 (4.0 system) grade point average on all work attempted or 2.75 on the last 60 hours attempted.
- Satisfactory scores on standardized test(s) specified by the academic college.
- Submission of all official admission documents to the Graduate School.

Students qualifying for unconditional admission who have not submitted a standardized test score may be allowed to submit the test score during their first quarter of enrollment as a graduate student, unless otherwise specified by the appropriate college. Students who fail to submit a satisfactory test score by the specified deadline will be dropped from graduate status until a satisfactory test score has been received; those students unconditionally admitted who do not submit a satisfactory test score will be subject to reexamination by the admissions officials of the appropriate academic college.

Students must attain unconditional status and meet all admission requirements prior to graduation from Louisiana Tech University.

Conditional Admission

Conditional admission requires that the applicant must have earned a bachelor's degree or its equivalent from a regionally accredited American university or from a foreign institution of acceptable and verifiable standing. Conditional admission may be gained by those applicants not qualified for unconditional admission while satisfying or validating his/her undergraduate deficiencies or meeting other conditions of admission. The final decision rests with the Dean of the Graduate School and is based upon the recommendation of the admissions officials of the academic college the student wishes to enter. The following are minimum requirements for conditional admission consideration:

- Minimum 2.25 (4.0 system) grade point average on all work attempted or 2.50 on the last 60 hours attempted.
- Maximum of 9 semester hours may be earned while fulfilling stipulated conditions. If the conditions are not removed after 9 hours of course work, the applicant will be dropped from the Graduate School.

Conditional status may be changed to unconditional status when a student earns a minimum of 9 hours of graduate credit at Louisiana Tech, *provided* he or she has fulfilled the conditions of admission *and* has a "**B**" average on all work pursued for graduate credit, including no grade lower than "**C**" and not more than one course with a grade of "**C**".

Students must attain unconditional status and meet all admission requirements prior to graduation from Louisiana Tech University.

Readmission

Students not enrolled at Louisiana Tech for two or more quarters (except for the summer term) must complete a new Graduate Application form and pay the processing fee for readmission to Graduate School.

Students not continuously enrolled at Louisiana Tech for one quarter (excluding the summer term), must complete a Readmission form. No processing fee is required for this process.

Students must be in good academic standing with a minimum GGPA of 3.00. Students with a GGPA below 3.00 must appeal for reinstatement by following the Graduate appeal process in the current catalog.

Changing Programs

A student desiring to pursue a new degree program or concentration (change program of study) should document the change by completing a new application indicating his/her choice of a new program of study. If the student stays within the same college, an application fee is not required with the new application. If the student changes to a degree program administered in a different college, then a new application and application fee are required. Applicants must complete and submit a Graduate Application for Admission to the new program or concentration prior to the first day of classes of any quarter for the change to become effective for that quarter and must meet all program admission requirements as new applicants.

A new Plan of Study with all appropriate signatures must be filed with the Graduate School by the end of the quarter in which the new program is started (see Plan of Study section).

Appeal for Reinstatement When Changing Programs

Students who are in poor academic standing at the time of leaving the program and /or college must submit a written letter of appeal to the original College to reinstate them in that College solely for the purpose of applying to another program.

Testing

Colleges may require that an applicant to Graduate School take the appropriate standardized test(s). Applicants for admission should contact the individual college for specific requirements:

- College of Applied and Natural Sciences: Graduate Record Examination (GRE-general).
- College of Business: Graduate Management Admission Test (GMAT). Scores older than 5 years are not accepted.
- College of Education: Graduate Record Examination (GRE-general).
- College of Engineering & Science: Graduate Record Examination (GRE-general).
- College of Liberal Arts: Graduate Record Examination (GRE-general).

All international students are required to submit documentation of English proficiency before their application can be evaluated. The scores must be achieved within two years of application to the Graduate School. Minimum acceptable scores:

- Paper-based TOEFL is 550.
- Internet-based TOEFL is 80.
- IELTS is 6.5 total on 4 academic modules.
- Successful completion of ELS intensive Level 112 at the Ruston ELS Language Center.

Applications for the appropriate test may be obtained from the Office of Testing and Disability Services, Wyly Tower, Room 318. For additional information and to register for these tests, contact the Testing Center, P. O. Box 3009, Ruston, LA 71272. Or, call (318) 257-4882.

Graduating Seniors - Concurrent Baccalaureate and Master's Program Enrollment

Graduating seniors who have a *minimum cumulative undergraduate GPA of 3.20 on all undergraduate work attempted* may be allowed to register for a combined load of undergraduate courses and courses

for graduate credit (500 level) if they meet the following University of Louisiana System criteria.. Students not meeting undergraduate preparatory requirements will not be eligible for this program. Student must obtain written approval of the appropriate college's graduate director/coordinator, academic dean, and the Dean of the Graduate School.

- Student must provide a minimum of 2 letters of reference along with a graduate application and processing fee.
- Student lacks no more than 30 semester hours to complete baccalaureate degree requirements.
- Student may earn no more than 12 graduate credit hours while completing baccalaureate requirements. Seniors may be allowed to take 6 graduate credit hours upon written approval of their Associate Dean/Graduate Director, and Dean of the Graduate School.
- Courses taken for graduate credit cannot be used to satisfy undergraduate requirements.
- The student retains undergraduate status until he/she is awarded the baccalaureate degree.
- While in the concurrent program, the student shall maintain a minimum cumulative graduate GPA of 3.0.

At the time of matriculation from the baccalaureate program and upon application to the graduate program, students seeking admission to a Master's program other than the program in which they were granted concurrent enrollment must meet the same admission requirements as other applicants to the program to which they are seeking admission. GRE and GMAT scores will be waived for students admitted to the Baccalaureate and Master's Concurrent Enrollment Program ***provided*** they successfully complete a minimum of 3 graduate semester hours towards the applicable program..

Students failing to maintain a minimum quarterly and cumulative 3.0 graduate GPA will be dropped from the concurrent program and will need to appeal for reinstatement prior to any further graduate admission or enrollment. All Graduate School admission criteria, including appropriate test scores, will be required of any students failing to maintain appropriate graduate GPA while in the Concurrent Program.

Doctoral Program Admission

Applicants for admission to the programs of study leading to the doctoral degree either will be granted an unconditional admission or will be rejected. It is emphasized that no quantitative standards are set and that admission is a judgment of the admissions officials of the appropriate college. These officials make their recommendation to the Graduate School Office.

The following are minimum admission criteria utilized in making a determination of admission eligibility:

- Minimum preparation to proceed at the doctoral level of study.
- A bachelor's degree from a recognized institution.
- An official transcript demonstrating sufficient undergraduate preparation for advanced study in both major and minor fields.
- A master's degree is recommended.
- Acceptable test scores on GRE or GMAT. Applications for these tests may be obtained from the Testing Center, Wyly Tower, Room 318.
- A minimum of 3 references is required at the direction of the admitting college.
- A locally administered screening or qualifying examination or an interview of the applicant may be required at the direction of the admitting college.

The Graduate School will receive and expedite the handling of all admission documents. Complete official transcripts of the applicant's undergraduate and graduate record, and of all academic work taken at other institutions must be submitted to the Graduate School in order to have a doctoral application considered. The applicant should consult the doctoral admission requirements for the appropriate college in order to determine that area's specific requirements for test scores and other items. Each academic college has the prerogative to be more selective and to establish higher standards for its respective graduate students.

Graduate Course Requirements

All 500-level courses are open to graduate students. Courses numbered in the 600- and 700-level generally require doctoral classification and are specifically associated with doctoral programs. There are courses numbered in the 400-level that are usually for seniors but may carry graduate credit. Graduate students taking 400-level courses for graduate credit are required to undertake additional work in order to bring the course requirements up to graduate-level rigor.

In order to pursue and/or receive a graduate degree, students must first be admitted to a specific degree program. Courses taken by graduate students that do not appear on an approved Plan of Study will not apply toward meeting the requirements of any graduate degree.

Curriculum Matriculation

Graduate students entering specific degree programs will follow the curricula in effect at the time of their admission to the University, as long as the students are pursuing their degrees on a continuing basis.

Students changing degree programs or those transferring from other institutions will follow the curriculum in effect at the time of admission.

Students may follow an updated curriculum that becomes effective while in a program of study; however, mixing of curricula is not permitted in satisfying requirements for degree completion or graduation.

Grading System

Official grades are maintained in the University Registrar's Office. Louisiana Tech applies a traditional system of grading and awards quality points for grades earned. An A is awarded for the highest degree of excellence that is reasonable to expect of students of exceptional ability and application. A grade of "**B**" is superior. A grade of "**C**" is average. A grade of "**D**" is given for a quality of work that is considered the minimum for receiving credit for the course. A grade of "**F**" is given for a failure, and the work must be repeated to receive academic credit. The University's grading system is as follows:

Grade	Number of Quality Points
A	4 quality points per semester hour
B	3 quality points per semester hour
C	2 quality points per semester hour
D	1 quality points per semester hour
F	0 quality points per semester hour
I	Incomplete (see explanation below)
S	Satisfactory (see explanation below)
W	Withdrew (see explanation below)
NC	No Credit (see explanation below)
PI	Permanent Incomplete (see explanation below)

Definition of the Incomplete (I) Grade

The grade "**I**" (Incomplete) is used to denote failure to complete all assigned class work and/or exams as a result of conditions beyond the student's control. It is the responsibility of the student to initiate a request with the instructor that a grade of "I" be issued. If the student's work is of passing quality, the instructor may approve the student's request and will assign a grade of "I" plus the average letter grade on all work completed to that point (e.g., "**IA**", "**IB**", "**IC**", or "**ID**"). A grade of "**IF**" cannot be issued. If the instructor agrees to issue an "**I**", he/she will complete a standard contract with the student detailing requirements for course completion and specifying the date those requirements must be finished. Instructors then provide a copy of the contract to the student and a copy to the department head/director. Students will receive a grade of "**IA**", "**IB**", "**IC**", or "**ID**" for that quarter. Incompletes are factored into hours attempted and quality points awarded. Therefore, they impact a student's quarter and cumulative grade point averages and are a factor in academic probation or suspension decisions.

The maximum amount of time allowed for a student to finish incomplete work is Friday of the fourth week in the following quarter, with one exception: students receiving an "**I**" in the Spring Quarter have until Friday of the fourth week in the following Fall Quarter to

complete their work. A reminder of this date is published in the academic calendar each quarter and can also be found on the academic calendar at Tech's web site (www.latech.edu).

If the student does not complete the required work within the contracted period, the instructor will change the "**I**" to an "**F**" by delivering a final grade change to the Registrar's Office by Friday of the fifth week of the quarter. The final grade replaces the "I" on the student's permanent record (transcript); attempted hours, earned hours, quality points, and quarter/cumulative grade point averages are recalculated applying the final grade. A student may be placed on or removed from academic probation or suspension based on the recalculated GPA at the time an "I" grade is cleared. "I" grades are cleared only by completing the required course work, and not by registering for the course again.

NOTE: Students registered for approved research, practicum, dissertation, or thesis courses requiring multiple quarters of the same course registration to complete the research receive an "**I-A**", "**-B**", "**-C**", or "**-D**" (or an "**I-S**" in the case of Satisfactory/Failure graded courses) for each attempt until the research or practicum is accepted as complete by the advising faculty member. At that time, the graduate student's "I" grades are changed to the appropriate "**A**", "**B**", **"C"**, "**D**", **"F"**, or "**S**" on his/her permanent record.

Definition of the Permanent Incomplete (PI) Grade

All grades of "**I**" awarded for Research & Thesis (551), or Research & Dissertation (651, PSYC 660, or LECD 799) courses will be automatically converted to Permanent Incomplete (PI) grades by the designated College representative (i.e. Associate Dean for Graduate Studies, Research Advisor, Instructor of Record, etc.) under the following circumstances:

- Student resigned from the academic program without completing the thesis or dissertation
- Student changed from a thesis track to a non-thesis or practicum track within the same Master's program.
- Time limitation for the degree has expired.

Thesis and dissertation course attempts with "**I**" grades changed to "PI" grades will remain on the student's graduate transcript. The attempted hours will continue to be tracked in the cumulative attempted graduate semester hours statistic. As the basic "**I**" grade is not calculated into the cumulative or quarterly GPA, there is no effect on GPA. The legend on the transcript will instruct the recipient that the student's thesis or dissertation is no longer in progress and will not be completed at Louisiana Tech University.

Thesis or dissertation "**I**" grades to "**PI**" grades are not eligible for use toward any future academic program, or a future return to the initial program, at Louisiana Tech University.

Definition of the Satisfactory (S) Grade

A grade of "**S**" indicates satisfactory completion of a course. The "**S**" grade increases hours earned but does not affect hours attempted or quality points and is not computed in any grade point average (GPA). Students registered for a course where the grade of "**S**" is used who do not complete the required course work will receive the grade "**F**".

Definition of the Withdrew (W) Grade

A "**W**" is issued when a student withdraws from a class (drops a class) after the final date for registration has passed and before the end of the first seven weeks of a quarter. The "**W**" grade will appear on the student's permanent record (transcript), but is not included in computing the student's GPA. Students who stop attending class(es) without following proper drop/withdraw or resignation procedures (walk-away) will receive an **"F"** grade for each class affected.

Definition of the No Credit (NC) Grade

The grade NC (used for undergraduate developmental courses and credit exams) denotes no credit earned or hours charged and is not computed in any GPA calculation.

Calculating Grade Point Average (GPA)

Graduate grade point averages are based on all graduate credit attempted and graded. Courses taken for undergraduate credit are not eligible for graduate credit and therefore are not factored into the graduate GPA.

For graduate students, the GPA is the benchmark figure used to determine continued graduate academic eligibility, graduate academic probation, and removal from graduate status. Quarterly and cumulative GPAs are recorded on the student's permanent academic record (transcript) and reported each quarter with their grades.

The Quarterly GPA

A student's quarterly grade point average (GPA) is obtained by dividing the sum of the quality points earned for the quarter by the number of semester hours attempted that quarter.

The Cumulative GPA

The *cumulative GPA* is determined by dividing the total quality points earned by the total number of hours attempted.

Grade Reporting

Louisiana Tech University does not mail grade reports. Students can obtain their final grades on the Internet using their BOSS account at the end of the quarter. Specific instructions for access are published quarterly in the *Schedule of Classes*, on the Tech web site, www.latech.edu, and reminders provided by the University Registrar's Office during early registration. Students needing a copy of their grades after the reporting period may obtain them thru BOSS by printing a copy of their unofficial transcript, requesting an official transcript, and/or requesting specific letters of verification.

Grade Requirements

To receive a graduate degree from Louisiana Tech University, a student must be unconditionally admitted to the Graduate School and have a cumulative GPA of at least 3.0 on all work pursued for graduate credit while registered at Louisiana Tech, as listed on the student's transcript, and a GPA of at least 3.0 on all graduate courses listed on the student's approved plan of study. No grade lower than "**C**" and no more than two "**C**"s will count toward a graduate degree. If more than two grades of "**C**" or below are earned during a student's graduate program and the cumulative GPA is below the 3.0 required, a student will be dropped from graduate status to post-baccalaureate status. Students dropped to post-baccalaureate status must appeal for reinstatement by following the Graduate Status Appeals Procedure. Each academic college has the prerogative to establish higher standards for its respective graduate students. Students are advised to refer to program-level and college standards as well as grade requirements.

Grade Requirements for Students Admitted Unconditionally

A graduate student **unconditionally** *admitted to a graduate degree program will be placed on graduate academic probation if his/her quarterly or cumulative GPA*, as listed on the student's graduate transcript, drops below 3.0 on all work pursued for graduate credit. The student will be allowed two additional quarters (three consecutive quarters total) to regain his/her good standing in graduate status by restoring his/her graduate cumulative GPA above the 3.0 minimum and providing he/she earns grades no lower than a "**B**" while on academic probation. A student will be dropped from graduate status to post-baccalaureate status if he/she does not fulfill the requirements to be restored from graduate academic probation to unconditional graduate status during the 3 consecutive quarters. The student will be required to appeal his/her dismissal from the graduate program through the appropriate individual(s) in his/her college to the Graduate Council to be reinstated to graduate status.

Grade Requirements for Students Admitted Conditionally

A graduate student **conditionally admitted** *to a graduate degree or graduate non-degree program is not eligible for graduate academic probation and therefore must maintain a 3.0 graduate average while completing the conditions of his/her graduate admission.* Failure to achieve a quarterly and cumulative graduate GPA of 3.0 or better will result in the student being dropped from graduate status to post-bacca-

laureate status. The student will be required to appeal his/her dismissal from the graduate program through the appropriate individual(s) in his/her college to the Graduate Council to be reinstated to graduate status.

Students admitted under the Graduate Certificate Program, Life Long Learning program, Transient, and Interinstitutional Cooperative Program (ICP) categories are required to earn a 3.0 or better each quarter of registration.

Final Grade Appeals Procedure

A final grade in a course represents the cumulative evaluation and judgment of the faculty member placed in charge of that course. If a student thinks the final grade in a course was not determined in accordance with University policies or was determined arbitrarily, the student may appeal by adhering to and completing the following three-step procedure by the 10th class day of the academic quarter immediately following the quarter in which the appealed grade was received.

1. Confer with the faculty member, setting forth clearly all points of concern. If the student remains unsatisfied with the results of the conference, proceed to Step 2.
2. Confer with the head of the department in which the course is taught, clearly setting forth all points of concern. If the student remains unsatisfied, proceed to Step 3.
3. **Write a letter of appeal to the dean of the college** in which the course is taught. The dean will send copies of the letter to the faculty member and department head.
   - The student must initiate the written appeal by providing an accurate and complete statement of all facts pertaining to the matter. Falsification may result in disciplinary action.
   - The dean must receive the letter within the first 10 class days of the academic quarter immediately following the quarter in which the appealed grade was received.

Notification

The dean may make a decision, which would be final in the matter. The decision should normally be communicated to the student within 10 class days after the appeal deadline.

The dean may refer the appeal to a college committee for review and recommendation. The committee's report would be a recommendation to the dean, whose decision would be final. When appeals are referred to the Committee, the final decision should normally be communicated to the student by the dean within 20 class days after the appeal deadline.

In reviewing the appeals, both the dean and the committee would have broad latitude in their procedures and recommendations, taking appropriate account of the interest of both the student and the faculty member. In all cases, the dean shall communicate the final decision to the student, faculty member, department head, and, if a grade change is involved, the University Registrar.

NOTE: In the case of academic misconduct where a faculty member invokes a grade penalty on a student, the faculty member will report the incident and penalty to his/her department head and to the Office of Student Life. If the student chooses to appeal the sanctions, the student will follow the procedures contained in the Academic Honor Code (Section Eight: Appeals) paragraphs of Chapter 4 of this catalog.

Academic Misconduct

Academic misconduct at the University is determined by the faculty member, committee, or other supervisor(s) under whom such misconduct occurs. The misconduct may occur in an individual class, a comprehensive exam, a practicum, an internship, a thesis or dissertation, a research project, a multi-quarter sequence of courses, or any other academically related matter or setting. Sanctions may range from dismissal from the University or an academic degree program to a failing grade or other penalty as determined by the faculty member, Plan of Study committee, supervising authority, or judiciary. The student has the right to appeal the charge of academic misconduct in accordance with the procedures contained in the Academic Honor Code (Section Eight: Appeals) paragraphs of Chapter 4 of this catalog.

Academic Status

Graduate students have the responsibility to learn their academic status prior to the beginning of the next enrollment period. Following completion of faculty submission of final grades, and final calculation of GPAs and Academic Status, students are responsible for viewing their grades and status on their personal BOSS account (menu option "Grades" or "Unofficial Transcript").

A student may be in academic good standing and eligible to enroll; graduate academic probation and eligible to enroll; or dropped to post-baccalaureate, and therefore not eligible to enroll in graduate-level courses.

Although students will usually receive additional official notification of academic status, such notice is not a prerequisite to students being placed in one of the above categories.

Graduate Status Appeals Procedure

Recognizing the unique attributes of graduate study, Louisiana Tech University has adopted policies pertaining to the appeal process for issues faced by graduate students. Students who are in poor academic standing that want to apply to change degree programs also follow this appeals procedure and may be reinstated solely for the purpose of applying to another program. The new program determines any condition of admissions. The following policy will be followed by graduate students wishing to appeal decisions related to their status as graduate students or their progress in graduate programs.

1. Graduate status appeals must be presented in writing to appropriate University personnel detailing the issue to be addressed and a proposed solution to students' appeals.
2. A student must initiate a College-level appeal of his/her graduate status within two calendar weeks of a change in graduate status. Each subsequent appeal must be made within two calendar weeks of the student being advised of the previous level appeal decision.
3. Levels of Appeal:
   - Loss of graduate status may be appealed in writing to the Graduate Director of the college in which the student is enrolled. A letter of support from the graduate advisor should accompany student appeals. If appeal is denied at the college level, student may file an appeal at the next administrative level.
   - The College decision may be appealed to the University Graduate Council. A letter of support from the College should accompany an appeal to the Graduate Council. The Council will make a decision at a scheduled meeting or by poll vote. If a majority of the Council cannot be contacted for a poll vote, the Dean of the Graduate School may make a decision.
   - A student may appeal the decision of the Graduate Council to the Vice President for Academic Affairs.
   - A decision of the Vice President for Academic Affairs may be appealed to the President of Louisiana Tech University.

Student Loads

The maximum graduate credit course load for a graduate student is 12 semester hours in a regular session. Not more than 9 hours of this total may be 500- and 600-level courses which will include, in master's programs, research and thesis and/or special non-lecture courses, except with the permission of the student's director of graduate studies. Students who hold full-time assistantships in a regular session will be required to reduce the maximum load by 3 hours. In addition, the appropriate department may require further load reductions. For sessions shorter than 1 quarter, the maximum load will be 1 hour of graduate credit for each week of the session.

A graduate student is verified as full-time with 6 or more *graduate* semester hours. A student receiving an assistantship must be qualified as a full-time graduate student. A graduate degree candidate, in his/her final quarter, may carry only the courses required for graduation and still be considered a full-time student.

Regulations for Enrollment, Registration, and Graduation

Continuous Enrollment and Registration

Graduate students should remain continuously enrolled while pursuing their graduate program. If circumstances prevent continuous enrollment for one or more quarters (except Summer Quarter), graduate students must re-apply for admission upon their return. *Graduate students must remain continuously enrolled during the research/practicum phase of their program. Students requiring a faculty member's time and assistance, laboratory facilities, library services, etc., while engaged in research or practicum, or preparing for or taking examinations must register for a minimum of 3 hours of graduate credit in the subject associated with the required activity – research, practicum, or examinations.* Graduate students must comply with time limitations for completion of programs set by policy for the graduate program in which they are enrolled.

Graduate students will conform to the registration schedule of the University and may not enter later than the last allowable date published in the Academic Calendar by the University Registrar.

Graduate International students are required to be enrolled for a minimum of 6 graduate credit hours in their degree program each term until graduation to maintain F-1 student visa status.

During his/her first quarter of graduate study, and before registering for successive quarters, a graduate student must obtain his or her advisor's approval of his/her proposed program (Plan of Study).

Graduate Status for Graduation

Graduate students are required to register for graduation in the quarter during which they complete all degree requirements. The candidate must be unconditionally admitted to their program (e.g. not in reinstatement/conditional readmission status). *Students who register for graduation and then withdraw must appeal in writing and receive permission from their college and the Dean of the Graduate School to register for graduation in any subsequent quarter.*

A candidate for graduation who fails to pass the final examination in only one course during the last quarter's work may be permitted to take a "deficiency examination" in this course. If the student fails the "deficiency examination," the course must be repeated.

Graduation

Commencement exercises are held and advanced degrees may be conferred at the close of any quarter, including the Summer Quarter. A student who is scheduled to receive a degree at the end of a quarter is expected to attend the commencement exercises. Degree candidates are required to arrive at the place of assembly no later than 1 hour before commencement exercises are scheduled to begin. A candidate can petition to be absent through a written request to the University President.

The applicant for graduation must be registered at Louisiana Tech University. Applications for graduation must be reported to the appropriate director for graduate studies and to the University Registrar by Friday of the third week of the quarter in which the student expects to graduate. Arrangements for caps, gowns, and hoods should be made in the University Bookstore.

Oral Defense of Thesis or Dissertation

Graduate students completing a thesis or dissertation as part of their degree program should check with their academic college for specific requirements. Oral defense of a thesis or dissertation must take place no later than the 10th class day of the quarter of expected graduation. Students are strongly advised to complete their defense in the prior quarter. In addition, all published deadlines for submission of a thesis or dissertation to the Graduate School and Library must be met for any given quarter.

General Requirements for all Master's Degrees

Some departments impose degree requirements that are more restrictive than the general requirements. The student is advised to check the department or college section of the Catalog for the area of study to be pursued. All students are expected to make and are responsible for making continuous satisfactory progress while pursuing the master's degree.

Advisory Committee

Thesis, Dissertation, and/or Comprehension Examination with Committee Membership Programs

Students pursuing a thesis, dissertation, and/or comprehension examinations with committee membership programs are assigned a major advisor upon approval for admission to Graduate School. After consultation with the Major Advisor, an Advisory Committee consisting of 3-5 members of the graduate faculty will be appointed for each student no later than the second year of study. For students pursuing a program of study administered by more than one college, the Advisory Committee shall consist of at least 3 members, with at least 1 member from the participating colleges. Colleges may require a specific makeup of committee membership for specific degree programs. It will be the responsibility of the Advisory Committee to counsel with the student and to make any changes to the individual Plan of Study that is then filed with the Graduate School.

Course Work Only, Practicum, and/or Comprehensive Examinations with Single Membership Programs

Students pursuing course work only, practicum, and/or comprehensive examinations with single membership programs are only required to have the Major Advisor. However, the decision to require an Advisory Committee will be left to the discretion of the College and Academic Program.

Plan of Study

A Major Advisor is assigned to each student upon approval for admission to the Graduate School. It is the responsibility of the Major Advisor to counsel with the student and to develop a Plan of Study that is then filed with the Graduate School by the end of the first quarter of graduate study (except Summer Quarter). For students pursuing a program of study administered by more than one college, an Advisor from each participating college should approve the initial Plan of Study and any revisions made to the Plan of Study. Students will not be allowed to register is on file with the Graduate School. A final Plan of Study with all graduate grades earned except final grades for the current quarter must be completed and submitted to the Graduate School prior to graduation.

Minimum Credit Requirement

The minimum credit requirement for the master's degree is 30 semester hours of graduate work, not more than 6 of which may be allowed for research and thesis. In optional programs not requiring a thesis, the standard course requirements should not be less than 30 hours. Students who do not write a thesis must demonstrate acceptable proficiency in research and reporting. A minimum of one half of the credit hours for the degree must be in courses open only to graduate students.

Transfer Credits

To satisfy requirements, a graduate student must earn at least two-thirds of the credit hours required for a master's degree at Louisiana Tech University.

Upon approval of the department involved, 1/3 of the hours required for the master's degree, a maximum of 12 semester hours of graduate resident credit, may be transferred for degree credit from a U. S. regionally accredited college or university. Accreditation status is confirmed through the publications *Higher Education Directory* and *Accredited Institutions of Postsecondary Education* .The grade earned must be "**B**" or above, and the credits must be accepted as applicable to the master's degree program by the student's academic college. Research and thesis credits are not eligible for transfer. Transfer credit

from non-U.S. institutions may require the evaluation of transcripts by an external agency. The final approval of transfer credit rests with the Dean of the Graduate School. No correspondence credits are applicable toward a master's degree.

Transfer credit for graduate courses will be posted on the student's transcript only by written request from the student's graduate committee chairperson and approved by the college graduate director. Transfer credit will be posted only for courses listed on the student's approved Plan of Study.

Thesis

The requirement of a thesis varies within the University; therefore, the prospective student should check the college and/or departmental sections of the catalog for their stipulations. General requirements, applicable to all graduate students meeting this thesis requirement, are enumerated below.

- A thesis subject should be selected by the student in consultation with the student's advisor and must be approved by the Advisory Committee. With permission of the Advisory Committee, a student not in residence but who has satisfied all course requirements may complete the thesis "in absentia."
- The research and thesis must be certified by registration in and completion of all requirements of the research and thesis courses numbered 551. If the student does not complete the course during the quarter in which he or she is registered for it, an incomplete or "**I**" grade will be given in the course until such time as all requirements are completed, including the thesis. The limit on clearing this grade is graduation. The thesis, in order to be approved, must be written in correct English and in scholarly form. It must show independent thought, both in its recognition of a clearly defined problem and in its method of treatment. It must reveal the sources of information and a knowledge of the bibliography of a special field. If a student's thesis contains proprietary information that the student wishes to retain as proprietary after submitting his or her thesis to the Graduate School and the Library, the student is permitted, based upon the recommendation of the chairperson of the committee responsible for approval of a student's thesis to the Graduate School, to substitute sample data for actual data, facsimile illustrations for actual illustrations, and "what-if" situations for actual situations, as appropriate, in the document being released to the public domain. The student will include an appropriate disclaimer in the thesis to state that samples, facsimiles, etc., are being substituted for proprietary information in the document being released to the public domain.
- The publication "Guidelines for the Preparation of Your Thesis or Dissertation" is available in the Graduate School Office and on the Graduate School website at URL http://www.latech.edu/graduate_school/thesis_dissertations/grad_guidelines_thesis.php and should be used as a guide in the preparation of the thesis. Students must meet published deadlines for submitting their thesis. The approved final copy of the thesis must be submitted to the college director of graduate studies 3 weeks before the expected date of graduation, to the Dean of the Graduate School 2 weeks before the expected date of graduation, and to Prescott Memorial Library 5 working days before the expected date of graduation.
- The director of graduate studies in each academic college will notify the academic dean and the Graduate School a minimum of one week prior to graduation that the candidate has completed all requirements other than the final quarter's grades and is eligible to receive the appropriate degree. A student will not be permitted to graduate unless all grades are cleared.

Students requiring a faculty member's time and assistance, laboratory facilities, library services, etc., while engaged in research and/or practicum *must register for a minimum of 3 hours of graduate credit in the subject associated with the required activity – research, practicum, or examinations.*

Should a chair of a thesis/dissertation committee leave the University and no suitable faculty member on staff at the University be available to fulfill the duties of chair, then, at the discretion of the College and with the approval of the Dean of the Graduate School, the chair in question may continue to serve on a voluntary basis with an adjunct appointment to the University's Graduate Faculty for that specific purpose only. The adjunct appointment will terminate upon the student's successful completion of the thesis/dissertation or upon the chair's subsequent replacement by a suitable faculty member on staff at the University.

Examinations

Oral and/or written comprehensive examinations will be administered by the Advisory Committee sufficiently in advance of graduation in order that the dean of the academic college (or a representative) in which the student is a candidate for a graduate degree may notify the Graduate School Office. This notification should be made at least one week before commencement and should state that all requirements have been satisfied, contingent upon satisfactory grades for the final quarter. Otherwise, the candidate will be delayed one quarter in receiving his or her degree. A student who does not successfully pass the comprehensive examination is entitled to only one repeat examination. No oral or written comprehensive examination is required for the MBA and MPA.

Time Limit for Degree

A time limit for the *completion of all requirements for the master's degree has been set at 6 consecutive calendar years from the time of initial enrollment*. Failure to do so will result in the student's immediate suspension from the master's degree program. Reinstatement appeals should be directed to the Dean of the Graduate School and the Graduate Council through the college director of graduate studies. The Graduate Council shall stipulate the conditions of possible reinstatement based on the recommendations made by the college and/or program.

Dual-Degree Programs

Students wishing to pursue two degrees simultaneously must provide the Graduate School with documentation for the Primary and Secondary degree program from the college(s) in which the degree program(s) resides. Appropriate admission procedures must be followed and separate applications submitted for each degree program. A processing fee must be paid for each program application. Each degree program must be supervised by an appropriate Advisory Committee with all paperwork, including Plan of Study, completed and submitted for each program being pursued.

Program changes must be reported by the appropriate college(s) to the University Registrar and the Graduate School immediately. Degree audits are required for each program being pursued. *The Primary program must be completed first*.

If two master's degrees are sought simultaneously, the requirements for "A Second Master's Degree" apply to the secondary program of which no more than 15 graduate credit hours from the primary degree may be applied towards the secondary degree. All published guidelines, policies, and procedures are applicable to these programs.

Earning a Second Master's Degree

A student pursuing a second master's degree must earn a minimum of 15 additional graduate hours at Louisiana Tech, in addition to the thesis or practicum if required, and must satisfy the requirements for a minimum number of exclusive graduate courses to be taken in the area in which the second degree is being earned, Some colleges may require more than 15 hours. A student pursuing a second master's degree may be allowed to apply from a previous graduate degree a maximum of one-half the credits required for the second degree. Transfer hours will not be approved on a second master's degree. If two master's degrees are sought simultaneously, the requirements for "Earning a Second Master's Degree" apply to the secondary program.

International students wishing to pursue a second master's degree or advance to a doctoral program need to obtain a new I-20 to comply with INS regulations.

General Requirements for All Doctoral Degrees

The doctoral degree is not awarded on the basis of completion of a course of study, however well done. Instead, the degree is earned by intensive individual study, inquiry, and original research by a well-qualified candidate under the close supervision of appropriate graduate faculty. The program must be tailored to the needs and interests of the candidate and to the needs and demands, present and future, of his or her profession. All students are expected to make and are responsible for making continuous satisfactory progress while pursuing the doctoral degree. Consequently, it is neither possible nor desirable to set firm and rigid requirements.

Because of the unique nature of each doctoral program and external programmatic constraints such as accreditation guidelines, the university-authorized requirements for individual doctoral programs may be more rigorous than the general requirements listed in this section or as specified by the State Board of Supervisors. Students interested in these programs should refer to listings under individual colleges or on appropriate college web sites.

Plan of Study

A Major Advisor is assigned to each student upon approval for admission to the Graduate School. It is the responsibility of the Major Advisor to counsel with the student and to develop a Plan of Study that is then filed with the Graduate School by the end of the first quarter of graduate study (except Summer Quarter). For students pursuing a program of study administered by more than one college, an Advisor from each participating college should approve the initial Plan of Study and any revisions made to the Plan of Study. Students will not be allowed to register until a Plan of Study is on file with the Graduate School. A final Plan of Study with all graduate grades earned except final grades for the current quarter must be completed and submitted to the Graduate School prior to graduation.

Minimum Credit Requirement

Formal course work is of indisputable value to bring the student into a scholarly relationship with members of the graduate faculty and to demonstrate accepted knowledge of a subject. A program leading to a doctoral degree normally shall be the equivalent of at least 3 years of graduate study beyond the baccalaureate degree.

Transfer Credits

Doctoral-level transfer credits can be granted for appropriate courses in which the grade earned is "**B**" or above, provided the credits are accepted as applicable to the degree program by the student's academic college. Individual doctoral programs may impose more restrictive criteria for approving transfer credit.No transfer credit for extension courses will be accepted. Research and dissertation credits are not eligible for transfer.

The request for transfer credit is initiated by the student through the advisor and the Director of Graduate Studies of the college. Transfer credit from non-U.S. institutions may require the evaluation of transcripts by an external agency. The final approval of transfer credit rests with the Dean of the Graduate School. A majority of the total credits required for a doctoral degree (excluding research and dissertation) must be earned at Louisiana Tech.

Transfer credit for graduate courses will be posted on the student's transcript only by written request from the student's graduate committee chairperson and approved by the college graduate director. Transfer credit will be posted only for courses listed on the student's approved Plan of Study.

Research and Dissertation

The dissertation is required of all candidates for the doctoral degree and must be supported by adequate research and independent study of a problem of reasonable scope under the close supervision of appropriate graduate faculty. Each student is responsible for becoming knowledgeable of Graduate School and specific program requirements and policies. A minimum of 15 semester hours credit is granted for this research and dissertation through the medium of appropriate registrations as guided by the student's Advisory Committee. Some doctoral programs may require more than the minimum 15 credit hours of research and dissertation. If the student does not complete the course during the quarter in which he or she is registered for it, an "**I**" grade will be given in the course until such time as all requirements are completed, including the dissertation. *The limit on clearing this grade is graduation.* Grades of "**I**" and "**S**" are used for these courses.

Students must meet published deadlines for submitting their dissertation. The approved final copy of the dissertation must be submitted to the college director of graduate studies 3 weeks before the expected date of graduation, to the Dean of the Graduate School 2 weeks before the expected date of graduation, and to Prescott Memorial Library 5 working days before the expected date of graduation.

If a student's dissertation contains proprietary information that the student wishes to retain as proprietary after submitting his or her dissertation to the Graduate School and the Library, the student is permitted, based upon the recommendation of the chair of the committee responsible for approval of a student's dissertation to the Graduate School, to substitute sample data for actual data, facsimile illustrations for actual illustrations, and "what-if" situations for actual situations, as appropriate, in the document being released to the public domain. The student will include an appropriate disclaimer in the dissertation to state that samples, facsimiles, etc., are being substituted for proprietary information in the document being released to the public domain.

The publication "*Guidelines for the Preparation of Your Thesis or Dissertation*" is available in the Graduate School Office and on the Graduate School website at ULR http://www.latech.edu/graduate_school/thesis_dissertations/grad_guidelines_thesis.php and should be used as a guide in the preparation of dissertations. The University participates in the service for publication of doctoral dissertations provided by University Microfilms. Each abstract is published in "Dissertation Abstracts." The doctoral candidate is advised to check with Prescott Memorial Library concerning this program.

The director of graduate studies in each academic college will notify the academic dean and the Graduate School a minimum of one week prior to graduation that the candidate has completed all requirements other than the final quarter's grades and is eligible to receive the appropriate degree. *A student will not be permitted to graduate unless all grades are cleared.*

Should a chair of a thesis/dissertation committee leave the University and no suitable faculty member on staff at the University be available to fulfill the duties of chair, then, at the discretion of the College and with the approval of the Dean of the Graduate School, the chair in question may continue to serve on a voluntary basis with an adjunct appointment to the University's Graduate Faculty for that specific purpose only. The adjunct appointment will terminate upon the student's successful completion of the thesis/dissertation or upon the chair's subsequent replacement by a suitable faculty member on staff at the University.

Majors and Minors

It shall be the responsibility of the student's Advisory Committee to explore with him or her and, subsequently, to define for the student his or her obligations toward majors and minors. The general content and scope of these majors for the disciplines involved shall have been approved by the Graduate Council and shall be so framed that their integrity is served in the administration of the program.

Examinations and Admission to Candidacy

After completion of a minimum of two full academic years of graduate work and compliance with any other requirements of the appropriate academic college, comprehensive examinations (general examinations) are required to determine whether the student is ready to be admitted to candidacy for the doctoral degree. The results of these examinations may also determine additional work to be taken and may determine the feasibility of the dissertation project.

An examination defending the dissertation must be completed successfully at least two weeks prior to the date the final copy of the dissertation must be submitted to the college director of graduate studies

before the degree is to be received.

Residence Requirement

The minimum residence requirement for the doctoral degree shall be 8 quarters beyond the bachelor's degree. The student is required to spend at least 3 quarters beyond the first year of graduate study in continuous residence. The transfer of course work from a recognized graduate school carries with it the transfer of residence credit, but a minimum of 24 semester hours of graduate credit beyond the first year of graduate study must be earned in residence at Louisiana Tech University.

Time Limitation

Doctoral students who have earned master's degrees in the area of their doctoral studies will be expected to *complete the requirements for the degree in seven years from initial enrollment; all others will have eight years*. A student who does not complete the doctoral degree within the time limits described will be dropped from the program.

Appeal: Students seeking an extension of the time limit for completion of their degree must provide a written appeal for extension to the graduate director in the college to which they were admitted for doctoral study. The appeal must describe the circumstances that prevented the student from completing the degree in a timely manner, a plan, and a time line describing the steps to be taken to complete the degree. Such an appeal must then be reviewed and approved by the college graduate director, and the Dean of the Graduate School. In no case may an extension to the time limit for degree completion exceed two years.

General Requirements for Graduate Certificate Programs

Graduate Certificate Programs consist of a minimum of 12 to 24 graduate semester hours. No more than one-third of the 12 to 24 semester hours can be taken at the 400-level (eligible for graduate credit). Courses taken for credit toward a Graduate Degree Program at Louisiana Tech University will not be counted toward the certificate without appeal to the applicable Graduate Certificate Program prior to completion of the Graduate Degree Program. All course work must be registered for and completed through Louisiana Tech University within a three-year (twelve-quarter) time limit.

Graduate students enrolled in Graduate Degree Programs (master's or doctoral) at Louisiana Tech University can be concurrently enrolled in a Graduate Certificate Program. Undergraduate seniors are not eligible for concurrent enrollment in the Graduate Certificate Program.

The Graduate Certificate Program is a non-degree track. It should be noted that success in or successful completion of a Graduate Certificate Program does not guarantee admission into a Graduate Degree Program. Federal Title IV student financial assistance and tuition waivers will not be available for students classified as graduate certificate students.

Admission to the Graduate Certificate Program

Obtain an application for admission to the Graduate Certificate Program, and follow the same timing of Graduate School admission procedures.

Applicants must:

- Have earned a baccalaureate degree from a regionally accredited educational institution.
- Have a cumulative undergraduate GPA of 2.25/4.0 (or 2.5/4.0 on the final 60 semester hours of baccalaureate degree work).
- Provide a baccalaureate degree-posted official transcript, sent directly to the Graduate School.
- Submit a completed application to the Graduate School, including all required documentation and the application processing fee by the application due date.
- GRE/GMAT test scores are NOT required for admissions unless specifically required by the Graduate Certificate Program.
- International student applicants whose native language is not English must submit TOEFL and/or IELTS scores before the application can be evaluated for admission. TOEFL score requirements are paper-based 550, or Internet-based 80; the minimum acceptable IELTS score is 6.5. Successful completion of ELS 112 will be accepted as demonstration of English proficiency.
- Admission into a Graduate Certificate Program does not guarantee admission into a Graduate Degree Program, nor does admission into a Graduate Certificate Program imply the waiver of any requirements for admission into a Graduate degree program.
- The decision for admission into a Graduate Certificate Program will follow the procedures of review used for admission into existing Graduate degree programs.

Discipline-specific admission requirements will be monitored by the program coordinator in conjunction with the student's assigned faculty advisor.

Student Enrollment Procedures

Students admitted to a Graduate Certificate Program will follow standard procedures for advising, registration, tuition/fee payment deadlines, grade reporting, and academic standards. Each student admitted into a Graduate Certificate Program will be assigned a faculty advisor.

Specific procedures relating to registration, enrollment, and matriculation are found in the University Catalog, in the quarterly publication "The Racing Form," and in the special instructions areas of the Bulldog Online Student System (BOSS) areas of the Louisiana Tech University website.

Grade Requirements

Graduate Certificate Program students will meet the following quarterly and cumulative grade requirements at Louisiana Tech University:

- Graduate Certificate students must maintain a quarterly and cumulative 3.0 GPA on all course work.
- No grade lower than "**C**" and no more than two C's will be counted toward a Graduate Certificate Program.
- Failure to achieve the quarterly/cumulative GPA requirements will result in the student being dropped from the certificate program.
- Student appeals for reinstatement will follow the Graduate Status Appeals Procedure (details can be found in this chapter of the University Catalog).

Full-time status for a Graduate Certificate Program student will consist of a minimum of 6 graduate semester hours. Graduate Certificate Program students should remain continuously enrolled until completion of their program. If they are unable to do so, they must apply for admission upon return to the program.

Financial Aid for Graduate Students

Louisiana Tech University provides equal educational opportunities for all graduate students, and this policy of equal opportunity is fully implemented in all programs of financial aid to assist students in obtaining an education at Louisiana Tech.

An extensive financial aid program encompassing employment, loans, and scholarships is available to assist students. Need, skills, and academic performance are carefully weighed to develop a "financial package" for qualifying graduate students.

Employment is available in a wide variety of forms to the graduate student who is willing to work. Areas of work include but are not limited to clerical, maintenance, food service, laboratories, library, and dormitories. Pay rates are commensurate with the skill and experience required, and work is limited to avoid interference with academic pursuits. The University participates in the Federal College Work-Study program designed to assist students with financial need in addition to employment available through individual departments on campus.

The student is advised to make inquiries at the Office of Student Financial Aid in person or by writing to the office at Box 7925, Ruston, Louisiana 71272-0029 in January prior to fall enrollment.

Graduate students must be unconditionally admitted and enrolled in their degree program in order to qualify for their federal assistance.

Federal regulations stipulate that any undergraduate and graduate student must be enrolled "in an eligible program for the purpose of obtaining a degree, certificate, or other recognized credential." Non-degree students do not qualify for financial aid. Before graduate students can be considered eligible for any financial assistance, they must meet *all* admission standards as specified by the Graduate School and their academic college. Students admitted as *Transient* and *Life-Long Learning* are considered enrolled in a non-degree program, and, therefore, *are not eligible to receive federal financial aid*. Federal Title IV student financial assistance and tuition waivers are not available for students classified as graduate certificate students. All inquiries regarding these standards should be referred to the Graduate School or to the appropriate academic dean.

Graduate students must meet the requirements for "satisfactory progress" in order to be eligible for participation in the programs of student financial aid at Louisiana Tech University. What constitutes "satisfactory progress" and the consequences of failure to meet them successfully are applicable to the federal financial aid programs in a different fashion from regulations governing academic probation and suspension. Federal regulations frequently mandate amendments to established policies; consequently, financial aid participants (and potential participants) would be well-advised to maintain close liaison with the Financial Aid Office regarding these requirements.

All applicants for federal financial assistance must complete their file in the Financial Aid Office at least two months prior to the beginning of the quarter for which they seek to receive aid. Priority is given to applications received by or before published deadlines. The following sources of financial assistance are available to eligible students, providing funds are available.

Monthly Payment Options for Students and Families

Tuition Management Systems offer families several Monthly Payment Options to help make education expenses more affordable. The Interest-Free Monthly Payment Option enables families to spread all or part of the annual expenses over equal monthly payments. There are no interest charges and only a small annual fee. This plan includes life insurance protection covering the unpaid balance at no additional cost. Additionally, low-interest monthly payment options, including an unsecured loan, a home equity credit line, and federally backed loans, are also available. Please contact Tuition Management Systems at 1-800-722-4867 or 401-849-1550 for more information on these programs.

Federal Perkins Loan Program

A Perkins Loan is a low-interest loan designated to help undergraduate and graduate students pay educational costs. A graduate student may borrow up to an aggregate for all years of $60,000. A new student borrower has a nine-month "period of grace" after the student ceases to be enrolled on at least a half-time basis at the University before repayment must begin.

Subsidized and Unsubsidized Federal Stafford Loan Program (Formerly Guaranteed Student Loan Program)

Stafford loans are available for students meeting certain qualifications. Loans are made up to $8,500 per year for Subsidized Stafford and $12,000 per year in the Unsubsidized Stafford for graduate students. Aggregate loan limits are $138,500 for graduate/professional students of which no more than $65,500 of this amount may be in subsidized loans. The graduate debt limit includes any subsidized Stafford Loans received for undergraduate study.

After a student's application has been processed by the Office of Student Financial Aid, his/her Stafford loan is electronically certified and submitted for guarantee. He/She will receive a promissory note from the Guarantee agency which he/she must complete with references and return to his/her lender, credit union, or savings and loan association. This process may take three weeks before funds are available. Under the Subsidized Stafford Loan Program, interest charges to the student and repayments begin six (6) months after the student is no longer at least a half-time student. In the Unsubsidized Stafford Loan Program, interest does accrue while the student is enrolled on at least a half-time basis and students are required to make interest payments while in school or have the interest capitalized. To apply, students must complete the Free Application for Federal Student Aid (FAFSA) and a Louisiana Tech Financial Aid Data Form.

Academic Scholarships

Louisiana Tech University has a General Scholarship Program; in addition, each of the five colleges (Applied and Natural Sciences, Business, Education, Engineering & Science, and Liberal Arts) has its own scholarship program. Graduate students interested in applying should contact their academic college for more information.

Scholarships are divided into the following categories:

- Academic Scholarships. These scholarships are awarded on the basis of demonstrated ability—usually with regard to need.
- Grant-in-aid and Service Awards. Frequently, these are awarded on the basis of special skills and require the student to render a service to the University. Included in this category are scholarships in athletics, music, band, and academics.

Vocational Rehabilitation Grants

Vocational Rehabilitation is a public service program for physically and mentally handicapped individuals. To be eligible, a person must have a permanent disability which constitutes a job handicap. Graduate students with disabilities are advised to contact the Department of Vocational Rehabilitation in their districts for consideration of their cases.

Veterans' Orphans Scholarships

These scholarships are awarded to sons and daughters of deceased war veterans. Students apply to the Department of Veterans' Affairs in their district.

Graduate Assistantships

Assistantships are offered for students pursuing master's or doctoral degree programs. A student should contact the appropriate college for information concerning these assistantships. Students admitted to Graduate School non-degree programs will not be considered for assistantship funding.

Applications for Graduate Assistantships should be submitted to the Graduate School at least 4 months prior to the term the student expects to enroll. For assistantships awarded in the Fall quarter, applications would need to be submitted by February 1 preceding the fiscal year (fiscal year begins July 1) for which application for admission is made. Assistantship forms can be completed online on the Graduate School web site at URL www.latech.edu/graduate_school/financial_assistance.

Eligibility requirements:

- Must be eligible for admission to the Graduate School,
- Must meet the requirements of the individual College, and
- Must submit a satisfactory standardized test score required in his/her field.

University Policies, Procedures, and Guidelines for Graduate Assistants may be viewed on the Graduate School website at URL www.latech.edu/graduate_school/financial_assistance/.

Federal regulations for student financial aid consider assistantships as a financial aid resource and must be calculated when determining a graduate student's financial aid award.

Graduate Residentships

Graduate residentships are positions appointed by the Director of Housing for graduate students serving as hall directors in both men's and women's residence halls. Applicants may be married or single. There are limited positions available for summer. The applicant must be enrolled as a graduate student and agree to register for not more than six hours of course work each quarter. Responsibilities include residence hall staff supervision, program implementation, and coordination of hall administration. Additional information and application forms can be obtained from the Department of Housing, Louisiana Tech.

Chapter 16 – Interdisciplinary Graduate Programs

Doctor of Philosophy in Computational Analysis and Modeling (PhD)

Administration

Coordinator:
Weizhong Dai, Program Chair
Steering Committee Members
James Cochran
Sumeet Dua
Box Leangsuksun
Katie Evans
Bala Ramachandran
Galen Turner

Address

More information about the Computational Analysis & Modeling program can be obtained by writing

Program Chair, CAM PhD program
Louisiana Tech University
P.O. Box 10348
Ruston LA 71272
(318) 257-3301

and visiting http://coes.latech.edu/cam/

Objective

The Ph.D. program in Computational Analysis and Modeling is an interdisciplinary doctoral degree program with participation from the College of Engineering and Science, the College of Business, and the College of Applied and Natural Sciences.

The program is intended to produce professionals who have a firm grasp of the fundamentals of mathematical modeling; who have the expertise to implement, analyze, and evaluate such models using state-of-the-art computing environments and advanced visual data analysis techniques; and who have made a cutting-edge contribution to some technical area associated with the program.

Program Administration

The Program Chair and the steering committee, with the approval of the Dean of Graduate School, will establish the policies and procedures applicable to this program, evaluate applications, administer examinations, and oversee all aspects of the student's work.

Admission Requirements

1. Applicants must meet the general requirements for admission to graduate programs at Louisiana Tech University (see Chapter 15 of this Catalog.)
2. A master's degree in one of the physical or biological sciences, engineering, computer science, or mathematics is recommended but not required. Exceptional students with a bachelor's degree in an appropriate area will be considered.
3. An official Graduate Record Examination (GRE) score is required. This requirement may be waived in the case of exceptional students.
4. Applicants must submit official transcripts.
5. Letters of recommendation may be required by the coordinator of the program.

Core Requirements, Courses, and Dissertation

Typically, 72 hours of graduate work will be required for the degree. The Core consists of 15 graduate hours of mathematics, 9 graduate hours of computer science, and 9 graduate hours of a third area chosen from chemistry, physics, biology, forestry, finance, statistics, or an engineering discipline. The remaining courses will be determined by discussion between the student and the advisor, with the approval of the interim committee.

The topic for the dissertation may be selected from the disciplines listed for the third area, but may also include mathematics or computer science.

Committees

A Doctoral Advisory Committee consisting of at least five (5) members must be appointed for each student by the end of the first quarter in the program. The composition of the committee shall be as follows:

1. The major professor (dissertation advisor)
2. At least one from mathematics and statistics
3. At least one from computer science,
4. At least one from the student's Area of Specialization.

Examination Structure, Candidacy, and Time Limitation

Qualifying Examination

The qualifying examination will consist of written examinations in mathematics and in computer science and an appropriate exam in the area of application. The qualifying exam in the area of application may consist of the master's degree in that area. A student who does not successfully pass the qualifying examination is entitled to only one repeat examination attempt.

Comprehensive Examination

Within 1 year of passing the qualifying exam, a student is normally expected to pass a comprehensive examination in his/her area of specialization. The comprehensive exam will include a lecture followed by a question/answer period on the student's proposed dissertation topic that exhibits a clear demonstration of an understanding of the principles and methods involved in his/her proposed area of specialization.

Candidacy

After the student has successfully passed the comprehensive examination, the student will be admitted to candidacy.

Dissertation Defense Examination

The student's Doctoral Committee administers the dissertation defense exam. It will, in most cases, consist of an open public defense of the results of the dissertation. This final exam must be successfully completed in accordance with the deadlines published by the Graduate School. Those serving on the doctoral committee must recommend, with at most one dissent, that the student has satisfactorily passed the dissertation defense exam.

Timetable

- **Matriculation** – Doctoral Advisory Committee must be appointed and an initial plan of study submitted by the end of a student's first quarter of study.
- **Dissertation Research Proposal** - A proposal outlining the research to be undertaken for the dissertation must be submitted by the end of the fourth quarter of enrollment, not including summers.
- **Qualifying Exam** – To be taken in the first Fall Quarter following 3 quarters in the program, consisting of written examinations in mathematics and computer science, and appropriate examination in the third discipline (may consist of master's degree).
- **Comprehensive Exam** - (In the area of specialization, the area in which the dissertation is written) Within 1 year of passing the qualifying exam.
- **Admitted to Candidacy** - Upon passing the comprehensive exam, the student is admitted to candidacy for the doctoral degree.
- **Time Limitation** – Doctoral students who have earned master's

degrees in the area of their doctoral studies will be expected to complete the requirements for the degree in 7 years from initial enrollment; all others will have 8 years.

Master of Science in Molecular Sciences and Nanotechnology (MSMSNT)

Administration

Coordinators

Bala Ramachandran, Executive Associate Dean for Graduate Research, Engineering and Science

William J. Campbell, Associate Dean for Research, Applied and Natural Sciences

Steering Committee Members

Engineering and Science:

Yuri Lvov, Professor of Physics and Chemistry

Teresa Murray, Assistant Professor of Biomedical Engineering

Applied and Natural Sciences:

David K. Mills, Professor of Biological Sciences

Rebecca Giorno, Assistant Professor of Biological Sciences

Patrick Hindmarsh, Assistant Professor of Biological Sciences

Address

More information about the Molecular Sciences and Nanotechnology program can be obtained by writing to one of the coordinators:

c/o Dean of Graduate School
Louisiana Tech University
P.O. Box 7923
Ruston LA 71272
(318) 257-2924

and visiting the web site: http://coes.latech.edu/grad-programs

Objectives

The objectives of this interdisciplinary program are

1. To train graduate students in experimental, theoretical, and computational aspects of research in molecular biology, chemistry, and physics, particularly where these disciplines intersect.
2. To enhance interdisciplinary applied research at Louisiana Tech University in micro and nanotechnology, including molecular biology and protein engineering.
3. To prepare graduate students for the next generation of careers in science and technology by offering a unique, flexible, and highly marketable graduate degree.
4. To prepare graduate students for interdisciplinary or traditional PhD programs in biochemistry, chemistry, materials science, molecular biology, and physics which emphasize research at the intersections of one or more of the traditional disciplines.

Program Administration

The coordinators and the steering committee, with the approval of the Dean of Graduate School, will establish the policies and procedures applicable to this program, evaluate applications, administer examinations, and oversee all aspects of the student's work.

Admission Requirements

The program is offered by the College of Applied and Natural Sciences (ANS) and the College of Engineering and Sciences (ES). Students with undergraduate backgrounds in biological sciences should choose degree codes that start with the "ANS" college code on the application. Students with physical sciences or engineering backgrounds should choose degree codes that start with the "ES" college code on the application.

1. A four-year undergraduate degree in biological sciences, biomedical engineering, chemical engineering, chemistry, electrical engineering, or physics, or a closely related discipline such as biochemistry, biophysics, chemical technology, engineering physics, molecular biology, or pharmacology.
2. Official Graduate Record Examination (GRE) scores are required. It is expected that most applicants will have a minimum total score of 300 in the Verbal and Quantitative Reasoning sections with a minimum of 142 in the Verbal Reasoning section.

Course Requirements

Thesis or practicum options are available. The thesis option consists of 24 semester credit hours (SCH) of courses + 6 SCH of research and thesis for a total of 30 SCH. The Practicum Option consists of 33 SCH of courses + 3 SCH of practicum for a total of 36 SCH.

All students will be required to take either MSNT 505 (Nanotechnology Principles) or MSNT 521 (Principles of Cell and Molecular Biology) depending on research interests. All students will also take MSNT 502 (Research Methods) and MSNT 504 (Seminar) as core courses. The remainder of the curriculum is to be determined by consultation with the research advisor and advisory committee.

Some remedial work may be necessary to acquire the required background if the student decides to change fields at this point (e.g., physics students may have to take biology classes and biology students may need to improve their knowledge of the physical sciences).

Committee, Plan of Study, and Research Proposal

A graduate advisory committee will be appointed for each student by the end of the first quarter of enrollment. The advisory committee shall consist of at least 3 members, with at least 1 member from the two participating colleges (Engineering & Science, and Applied & Natural Sciences). A Plan of Study listing the courses to be taken should be prepared in consultation with the research advisor, approved by the committee, and submitted by the end of the first quarter of enrollment. The choice between thesis and non-thesis options must be made at this time.

A research proposal detailing the research to be conducted for the thesis or practicum must be prepared in consultation with the advisor, approved by the advisory committee, and submitted by the end of the second quarter of enrollment.

Doctor of Philosophy in Molecular Sciences and Nanotechnology (PhD)

Administration

Coordinators

Bala Ramachandran, Associate Dean for Research, Engineering and Science

William J. Campbell, Associate Dean for Research, Applied and Natural Sciences

Steering Committee Members:

Engineering and Science:

Yuri Lvov, Professor of Physics and Chemistry

Teresa Murray, Assistant Professor of Biomedical Engineering

Applied and Natural Sciences:

David K. Mills, Professor of Biological Sciences

Rebecca Giorno, Assistant Professor of Biological Sciences

Patrick Hindmarsh, Assistant Professor of Biological Sciences

Address

More information about the Molecular Sciences and Nanotechnology program can be obtained by writing to one of the coordinators:

c/o Dean of Graduate School
Louisiana Tech University
P.O. Box 7923
Ruston LA 71272
(318) 257-2924

and visiting the web site: http://coes.latech.edu/grad-programs

Objectives

The objectives of this interdisciplinary program are

1. To train graduate students in experimental, theoretical, and computational aspects of research in molecular biology, chemistry, and physics, particularly where these disciplines intersect.
2. To enhance interdisciplinary applied research at Louisiana Tech University in micro and nanotechnology, including molecular biology and protein engineering.
3. To prepare graduate students for the next generation of careers in science and technology by offering a unique, flexible, and highly interdisciplinary graduate degree.

Program Administration

The PhD in Molecular Sciences and Nanotechnology is a collaborative interdisciplinary degree offered by the College of Applied and Natural Sciences (ANS) and the College of Engineering and Science (ES). The coordinators and the steering committee, with the approval of the Dean of Graduate School, will establish the policies and procedures applicable to this program, evaluate applications, administer examinations, and oversee all aspects of the student's work.

Admission Requirements

Students with undergraduate backgrounds in biological sciences should choose degree codes that start with "ANS" on the application. Students with physical sciences or engineering backgrounds should choose degree codes that start with "ES."

1. A Master's degree in biological sciences, biomedical engineering, chemical engineering, chemistry, electrical engineering, physics, or a closely related area is the expected qualification.
2. Students with Bachelor's degrees may be admitted directly to the PhD program on the basis of outstanding academic achievements (as evidenced by GPA, GRE, and scholarly achievement).
3. Official GRE scores are required. It is expected that most applicants will have a minimum total score of 304 in the Verbal and Quantitative Reasoning sections with a minimum of 146 in the Verbal Reasoning section.
4. At the discretion of the PhD Steering Committee, the GRE requirement may be waived in the case of exceptional students, especially for those with national fellowships, scholarships, or professional achievement.

Core Requirements, Courses, and Dissertation

The curriculum consists of 66 credit hours. All students are required to complete a common set of core courses (10 credit hours) that exposes students to nanotechnology and molecular biology. The curriculum also requires a minimum of 23 credit hours of electives, to be selected by the student in consultation with the doctoral advisory committee and 12 credit hours of special topics and directed study designed to provide considerable depth in the dissertation area. A minimum of 18 credit hours of research and dissertation hours are required.

Doctoral Committee

A Doctoral Committee consisting of at least 5 members must be appointed for each student by the end of the first quarter in the program. It is expected that the student will first choose a dissertation advisor and select the remaining committee members in consultation with the advisor. The majority of the committee will be drawn from the college of the dissertation advisor. At least one committee member shall be from the other college.

Examination Structure, Candidacy, and Time Limitation

Qualifying Examination

The qualifying examination will consist of a written examination that covers general topics in molecular biology and nanotechnology. It is strongly recommended that students register for the qualifying examination soon after successfully completing the core courses, which should normally occur within the first three quarters of matriculation, not including summers.

Comprehensive Examination

Within 1 year of passing the qualifying exam, a student is normally expected to pass a comprehensive examination in his/her area of specialization. The comprehensive exam will include a short presentation to the Doctoral Advisory Committee and the public on the student's proposed dissertation topic followed by a question and answer period for the public, and a closed door session with the Committee.

Candidacy

After the student has successfully passed the comprehensive examination, the student will be admitted to candidacy.

Dissertation Defense Examination

The student's Doctoral Committee administers the dissertation defense exam. It will, in most cases, consist of an open public defense of the results of the dissertation. This final exam must be successfully completed in accordance with the deadlines published by the Graduate School. Those serving on the doctoral committee must recommend, with at most one dissent, that the student has satisfactorily passed the dissertation defense exam.

Timetable

- **Matriculation** – Doctoral Advisory Committee must be appointed and an initial plan of study submitted by the end of a student's first quarter of study.
- **Dissertation Research Proposal** - A proposal outlining the research to be undertaken for the dissertation must be submitted by the end of the fourth quarter of enrollment, not including summers.
- **Qualifying Exam** – To be taken in the first Fall Quarter following 3 quarters in the program.
- **Comprehensive Exam** – To be completed within 1 year of passing the qualifying exam.
- **Admitted to Candidacy** - Upon passing the comprehensive exam, the student is admitted to candidacy for the doctoral degree.
- **Time Limitation** – Doctoral students who have earned master's degrees in the area of their doctoral studies will be expected to complete the requirements for the degree in 7 years from initial enrollment; all others will have 8 years.

Chapter 17 – Graduate Programs
College of Applied and Natural Sciences

Administration

Dean
Gary A. Kennedy
Associate Dean for Undergraduate & Graduate Studies
Janet F. Pope
Associate Dean for Research
William J. Campbell
Department of Health Informatics and Information Management
Angela Kennedy, Head
School of Biological Sciences
William J. Campbell, Director
School of Human Ecology
Amy Yates, Director

Address

More information about the College of Applied and Natural Sciences can be obtained by writing to

College of Applied and Natural Sciences
Louisiana Tech University
P.O. Box 10197
Ruston, LA 71272
(318) 257-4287

and by visiting the College's web site at ans.latech.edu

Graduate Degrees Offered

Master of Health Informatics
- Health Informatics

Master of Science
- Biology
- Nutrition and Dietetics
- Molecular Sciences and Nanotechnology (Interdisciplinary)

Doctor of Philosophy
- Molecular Sciences and Nanotechnology (Interdisciplinary)

Graduate Certificate Offered

Graduate Certificate in Dietetics

The Graduate Certificate in Dietetics is designed to provide future registered dietitians with knowledge and basic skills required to participate in outcomes-based research on-the-job, and to provide an in-depth study of evidence based practice guidelines in one or more areas of dietetics specialization. For admission to the Graduate Certificate in Dietetics, refer to the Admission to the Graduate Certificate Program section of Chapter 15 in this catalog. The certificate requires the completion of 15 hours of graduate course work, including HEC 504, FNU 548, two additional 500-level FNU courses, and one approved elective. The certificate program is completed in conjunction with the ACEND-accredited dietetic internship

Requirements for Admission

Students seeking admission to a graduate program in the College of Applied and Natural Sciences are required to have an earned bachelor's degree from an accredited college or university. With the exception of applicants to the Master of Health Informatics program, all prospective students are required to submit an official copy of their General Test scores from the Graduate Record Exam (GRE). In the Department of Health Informatics and Information Management the minimum GPA required for unconditional admission status is 3.00; conditional admission status iin the Health Informatics master's program requires a minimum GPA of 2.50. Unconditional admission into the master's program in Biology requires a minimum combined score of 290 (verbal + quantitative) on the GRE and a minimum 3.00 GPA; conditional admission requires a combined GRE score of 283 and a minimum GPA of 2.50. Requirements for unconditional admission into the interdisciplinary master's program in Molecular Sciences and Nanotechnology include a combined GRE score of 300 (with a minimum of 142 in the Verbal Reasoning section) and a minimum GPA of 3.0; Conditional admission status may be awarded to applicants with a GPA of at least 2,50 and a GRE of at least 283. To be admitted into the master's program in Nutrition and Dietetics, students must meet one of the following: (a) be a registered dietitian; (b) be eligible to take the national examination to become a registered dietitian; or (c) have completed a didactic program approved by the Accreditation Council for Education in Nutrition and Dietetics within the past five years.. The minimum requirements for unconditional admission into the Nutrition and Dietetics MS program include a 2.75 GPA, and a combined score of 290 (verbal + quantitative) on the GRE; conditional admission status is not available in the Nutrition and Dietetics master's program.

Students admitted to all graduate programs in the College of Applied and Natural Sciences will have their transcripts reviewed for previous course work completed. Students who lack necessary prerequisite course work may be required to satisfy deficiencies in the early stage of their graduate program.

Department of Health Informatics and Information Management

Master of Health Informatics (MHI)

The Department of Health Informatics and Information Management (HIIM) offers a non-thesis program leading to a professional Master of Health Informatics (MHI) degree. The Program is offered in an online format; on-campus courses are not available.

Admission

Admission is competitive; consequently, applicants who meet the minimum requirements specified herein are not assured admission. The Department Admissions Committee qualitatively and quantitatively evaluates applicants and makes decisions based on performance, personal qualifications, and evidence of potential for success. Applicants will be reviewed by the Admissions Committee after the following items have been received: application form, application fee, essay, reference letters, and all applicable transcripts. Applicants must possess a bachelor's degree from an accredited college or university and must meet the minimum admission requirements of the Graduate School, as well as the admission requirements of the Department of Health Informatics and Information Management. Admission criteria are described further on the website at URL him.latech.edu/masters.html.

Program of Study

Requirements for the Master of Health Informatics degree include a minimum of 45 semester hours of graduate credit including the following courses: HIM 500, 501, 502, 503, 504, 505; 510, 511, 513, 521, 522, 523, 530, 541, and 599.

Research Activities

Faculty members in the Department of Health Informatics and Information Management are involved in areas of research that may serve as a foundation for student projects or independent studies. Students interested in pursuing research are encouraged to contact the appropriate graduate faculty member or the Head of the Department

of Health Informatics and Information Management. Information describing faculty research areas is available directly from the faculty or from the Department of Health Informatics and Information Management.

Financial Support

Because of the online delivery of this program, graduate assistantships are not available. For additional information concerning financial support, contact the Head of the Department of Health Informatics and Information Management.

School of Biological Sciences

Master of Science (MS)

The School of Biological Sciences offers both thesis and non-thesis programs of study leading to the Master of Science in Biology.

Admission

Applicants to the Master of Science in Biology program must meet the general admission requirements of the Graduate School and the College of Applied and Natural Sciences.

Program of Study

Thesis Plan

The program of study for the degree of Master of Science in Biology with the thesis plan consists of a minimum of 30 semester hours of graduate credit of which at least 15 hours must be earned in 500-level, or above, courses. Required courses include BISC 502 (Research Methods in Biological Sciences), BISC 509 (Biological Sciences Seminar), BISC 535 (Current Topics in Biological Sciences), and 3 semester hours of statistics. A maximum of 6 semester hours of credit for BISC 530 (Biological Sciences Special Problems) combined with BISC 540 and BISC 541 (Biological Sciences Internship) can be applied toward the degree. Enrollment in 3 hours of graduate credit is required each quarter the student is using university resources (faculty time, laboratories, computing facilities, etc.) for thesis work. A maximum of 6 semester hours of BISC 551 is granted as partial fulfillment of the degree plan. Students will pursue original research in a specialized field of interest, supervised by a thesis advisor and approved by the student's Graduate Advisory Committee. Completion of the thesis plan includes an oral defense of the thesis and oral examination conducted by the student's Graduate Advisory Committee.

Non-Thesis Plan

The program of study for the degree of Master of Science in Biology with the non-thesis plan consists of a minimum of 36 semester hours of graduate credit of which at least 18 hours must be earned in 500-level, or above, courses. Required courses include BISC 502 (Research Methods in Biological Sciences), BISC 509 (Biological Sciences Seminar), BISC 517 (Applied Biological Sciences Research), BISC 535 (Current Topics in Biological Sciences), BISC 585 (Comprehensive Exam in Biological Sciences; 0 credit hours), and 3 semester hours of statistics. A maximum of 6 semester hours of credit for BISC 530 (Biological Sciences Special Problems) combined with BISC 540 and BISC 541 (Biological Sciences Internship) can be applied toward the degree. Non-thesis students are required to pass comprehensive written and oral examinations conducted by the student's Graduate Advisory Committee.

Research Activities

Faculty members conduct a wide range of research that may serve as the basis for student theses or independent study projects. Students interested in pursuing research are encouraged to contact the appropriate graduate faculty member, the Director of the School of Biological Sciences, or the Associate Dean for Research. Information describing faculty research areas is available directly from the faculty, from the School of Biological Sciences, or online at www.ans.latech.edu.

Financial Support

A limited number of University and externally funded assistantships are available on a competitive basis. Students holding assistantships will have out-of-state fees waived, if applicable. Students may also be employed as student workers. For additional information concerning financial support, contact the Director of the School of Biological Sciences.

Master of Science in Molecular Sciences and Nanotechnology (MSMSNT)

The School of Biological Sciences and the College of Applied and Natural Sciences offer an interdisciplinary Master of Science degree in Molecular Sciences and Nanotechnology (MSNT) in collaboration with the College of Engineering and Science. Refer to Chapter 16 of this catalog for more information.

Doctor of Philosophy (PhD)

The School of Biological Sciences and the College of Applied and Natural Sciences offer an interdisciplinary Doctor of Philosophy degree in Molecular Sciences and Nanotechnology (MSNT) in collaboration with the College of Engineering and Science. Refer to Chapter 16 of this catalog for more information.

School of Human Ecology

Master of Science (MS)

The School of Human Ecology offers both thesis and non-thesis programs of study leading to the Master of Science in Nutrition and Dietetics. The focus of the master's program is on the application of nutrition knowledge in clinical and community settings. The MS program alone does not enable students to meet eligibility requirements to take the national examination to become a registered dietitian; students desiring RD status must also complete a dietetic internship.

Admission

Applicants to the program in Nutrition and Dietetics must meet the general admission requirements of the Graduate School and the College of Applied and Natural Sciences. Students must meet criteria for unconditional admission; conditional admission status is not available in the Nutrition and Dietetics MS program. Applicants must have an earned bachelor's degree from an accredited college or university with a major in nutrition and dietetics or a related field. To be admitted into the master's program in Nutrition and Dietetics, students must meet one of the following: (a) be a registered dietitian; (b) be eligible to take the national examination to become a registered dietitian; (c) have completed within the past five years a didactic program accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND); or (d) have completed a similar program outside of the US. Students applying for admission into the post-baccalaureate dietetic internship must meet additional admission criteria and must apply through the Dietetic Internship Centralized Application System (DICAS). For more information about the ACEND-accredited dietetic internship at Louisiana Tech University contact:

Mrs. Dawn Erickson, Dietetic Internship Director
School of Human Ecology
PO Box 3167
Louisiana Tech University
Ruston, LA 71272

and visit www.latech.edu/ans/human-ecology

Program of Study

The Master's degree in Nutrition and Dietetics includes a thesis option, which is 30 semester hours credit, and a non-thesis option, which is 39 hours. Students will complete a research project in both options. Although most of the required course work in the MS program in Nutrition and Dietetics is offered electronically, the program itself is not considered to be an on-line program. At a minimum, students will be required to be on campus to defend their research proj-

ects. Students who are enrolled concurrently in the master's program and the dietetic internship will also take some courses that are delivered in the traditional face-to-face format.

Required courses for the thesis option include: HEC 504 - Methodology in Human Ecology Research; FNU 528 - Nutritional Management of Cardiovascular Disease; FNU 529 - Nutritional Management of Diabetes; and HIM 505 – Advanced Statistical Methods; and HEC 551 – Research and Thesis (students must enroll each quarter they are using University resources, although a maximum of 6 hours will apply to the degree); plus 12 hours of approved courses to be selected based on the student's areas of interest. Required courses in the non-thesis option include HEC 504, FNU 528, FNU 529, HIM 505, and HEC 506 – Special Problems in Human Ecology (non-thesis research), plus 24 additional hours to be selected in consultation with the graduate advisory committee. Students in both options are required to complete a written comprehensive examination (HEC 585) and an oral exam and defense of the thesis/non-thesis research project.

Research Activities

Faculty in the School of Human Ecology are involved in diverse areas of research which may serve as a foundation for students' theses, non-thesis research projects, or independent studies. Faculty research in Nutrition and Dietetics includes outcomes-based research for the practice of dietetics and nutritional and dietary assessment (e.g., dietary fat intake, calcium intake, fruit and vegetable intake, dietary supplements, risk factors for cardiovascular and osteoporosis diseases), life cycle effects (e.g., maternal and child nutrition, and geriatric nutrition), education (e.g., dietetic, education factors that influence dietary intake), and food service management (e.g., food safety, training and consumer behavior). Information describing faculty research areas is available directly from the faculty, from the School of Human Ecology, or online at www.ans.latech.edu.

Financial Support

A limited number of University and externally funded assistantships are available on a competitive basis. Students holding assistantships will have out-of-state fees waived, if applicable. Students may also be employed as student workers. The Merle Burke, Willie Fletcher, and Jeanne Mack Gilley scholarships are available for Nutrition and Dietetics graduate students. For additional information, contact the Director of the School of Human Ecology.

Dietetic Internship

The Dietetic Internship is a four-quarter post-baccalaureate program allowing students to satisfy the Accreditation Council for Education in Nutrition and Dietetics (ACEND) performance requirements required to be eligible to take the registered dietitian examination. The Dietetic Internship requires separate application, and admission into the Graduate School does not guarantee acceptance into the dietetic internship. Graduates of ACEND-accredited didactic programs (DP) are eligible to apply for admission to the dietetic internship. The practicum component of the program is implemented through facilities in Shreveport, Ruston/Monroe, and Alexandria. Students are assigned to facilities in one city to minimize required travel.

Dietetic internship students must be admitted to the Louisiana Tech University Graduate School and complete coursework that will apply toward the MS in Nutrition and Dietetics. Students are required to complete six semester hours of graduate course work in the summer quarter, and nine hours in the fall, winter and spring quarters. Included in thesis requirement are 21 hours of FNU 592 – Dietetic Internship practica hours (3 hours in summer, 6 hours each in fall, winter and spring). Though students receive graduate credit for FNU 592, a maximum of three hours will apply toward the plan of study for the MS in Nutrition and Dietetics. In addition to 592, students are required to enroll in one three hour graduate-level content course each quarter. Upon completing the DI, they will have earned 15 hours that apply toward the MS degree. Students who complete the 15 hours with a GPA of 3.00 or above may also be awarded a Graduate Certificate in Dietetics. Completion of the DI is not contingent upon completing the MS degree, although students are encouraged to complete the master's degree program, within the university's six year time limit. Most graduate-level courses are offered on-line to facilitate completion of the degree after students finish the DI.

Accreditation

The Dietetic Internship is accredited by the Accreditation Council for Education in Nutrition Dietetics of the Academy of Nutrition and Dietetics (120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995, 312-899-0040 x5400), a specialized accrediting body recognized by the United States Department of Education.

Chapter 18 – Graduate Programs
College of Business

Administration

Dean
Christopher L. Martin
Associate Dean, Graduate Programs and Research
John K. Francis
Assistant Dean, Undergraduate Programs
Vacant
School of Accountancy & Information Systems
Andrea Drake, Director
Department of Economics and Finance
Otis W. Gilley, Head
Department of Management
Rebecca J. Bennett, Head
Department of Marketing and Analysis
Barry J. Babin, Head

Address

More information about the College of Business may be obtained by writing to the:

Graduate Division
College of Business
P.O. Box 10318
Louisiana Tech University
Ruston, LA 71272
(318) 257-4528

and by visiting business.latech.edu

Vision

We will be increasingly recognized for advancing the interests of our stakeholders through instruction, research, and service that

- integrates business, entrepreneurship, and technology;
- leads to innovation in business; and
- prepares our students to think strategically and become effective leaders.

Mission

Our mission—indeed, our passion—is the continuing advancement of the quality and relevance of our teaching and research, and of our relations with constituents. We seek to fulfill these aspirations through discovering new knowledge, creating meaningful learning experiences, preparing our students for successful professional careers, developing mutually beneficial partnerships, and Building Distinction by enhancing the reputation of the College.

Accreditation

The College of Business is accredited by the AACSB International – The Association to Advance Collegiate Schools of Business. Also, the School of Professional Accountancy is separately accredited by the AACSB.

Graduate Degrees Offered

Master of Business Administration

- Business Administration (with concentrations in Accounting, Computer Information Systems, Economics, Finance, Information Assurance, Innovation, Management, Marketing, Quantitative Analysis, and Telecommunications)

Master of Professional Accountancy

- Accounting

Doctor of Business Administration

- Business Administration (with concentrations in Accounting, Computer Information Systems, Finance, Management, Marketing, and Quantitative Analysis)

Graduate programs in business are designed to prepare students to engage in professional and/or administrative careers in business and government, and to enter the academic community. Students may enter the master's programs any quarter. Each graduate student has an advisor to help plan his/her program and tailor it to individual needs and objectives. In the College, no grade lower than "**C**" in courses taken for graduate credit will be applied toward a degree program. Also, no more than two "**C**"s will count toward a graduate degree. All courses pursued for graduate credit will be counted in the grade point average. *To receive a graduate degree, a student must have a cumulative average of at least 3.0 on all work pursued for graduate credit while registered at Louisiana Tech.*

Graduate Certificates Offered

Graduate Certificate in Information Assurance

A Graduate Certificate in Information Assurance is available to students who apply and complete CIS 521 and any three of the following: 522, 523, 524, and 525. No prerequisites are needed other than a baccalaureate degree. The certificate meets 4011 and 4016 National Security Agency guidelines.

Graduate Assistantships

A limited number of graduate assistantships are available for students of high academic accomplishment. The graduate student who holds an assistantship is expected to carry a reduced course load that will vary depending on scholastic record and amount of work required by the assistantship. Teaching assistantships are awarded to doctoral students.

Master of Business Administration (MBA)

The purpose of the Master of Business Administration (MBA) program is to offer an educational experience in business and management at the graduate level. The program is designed to provide breadth in exposure to the basic business disciplines and to facilitate the integration and application of knowledge of the various disciplines to the management of innovation. It is an interdisciplinary and interdepartmental degree program offered by the Graduate Division and the academic departments of the College of Business. Ethical concerns and international issues are emphasized throughout the curriculum.

Objectives and Outcomes

During the MBA program, students will:

- Examine the theory, principles, and knowledge necessary to manage modern business enterprises effectively;
- Work effectively in teams to formulate solutions to complex business problems;
- Develop an awareness of the issues and questions faced by those in leadership positions;
- Cultivate the particular skills necessary for the management of innovation;
- Design and communicate solutions to case studies and real-world problems.

Admission Requirements

To qualify for admission to the MBA program, applicants must meet the admission requirements of the Graduate School of the University and the admission requirements of the Graduate Division of the

College of Business. Any applicant who holds a bachelor's degree, or equivalent, from an accredited college or university will be considered for admission regardless of the undergraduate field of study. An applicant for admission should understand that graduate work is not merely an extension of undergraduate work. Graduate study operates at a significantly higher level of rigor, demands scholarship of a higher order, and places more emphasis on research and student responsibility.

Once the admission requirements of the Graduate School have been met, the MBA Admissions Committee will grant admission to those individuals who demonstrate significant accomplishment and/or high potential for success. The decision of the Admissions Committee is based on a combination of the applicant's previous academic record and the applicant's score on the Graduate Management Admission Test (GMAT). In some cases, at the discretion of the Associate Dean of Graduate Programs, the GRE may be accepted in place of the GMAT. If accepted, the GRE score will be converted to a "GMAT equivalent" using the score comparison tool provided at the following link: www.ets.org/gre/institutions/about/mba/comparison_tool. Applicants with a composite score (equal to 200 x UGPA + GMAT score) of at least 1,100 (1,150 when calculated using the GPA from the applicant's last 60 credit hours) and who have an undergraduate GPA of at least 2.75 and a GMAT score of at least 450 are eligible for unconditional admission to the MBA program. GMAT Score may be up to 5 years old at the time of application. Applicants who do not meet the requirements for unconditional admission may be considered for conditional admission to the MBA program. The Committee may also consider significant business experience as an indicator of an individual's ability to complete the program.

Recipients of the Louisiana Tech Graduate Certificate in Communications Systems are not required to submit a GMAT score when applying to the MBA program.

For information, contact the Associate Dean of Graduate Programs and Research, College of Business, Louisiana Tech University, Ruston, LA 71272 or refer to our web site business.latech.edu/graduate

Foundation Requirements

Students entering the MBA program with undergraduate degrees, other than business need to demonstrate a knowledge base sufficient to enable them to complete graduate-level work in business. At a minimum, each student is presumed to be computer literate and to have had recent college-level course work in the following core areas:

- economics (ECON 202, or ECON 494);
- financial and managerial accounting (ACCT 201 and 202, or ACCT494);
- business finance (FINC 318 or FINC 494);
- business calculus (MATH 222, or QA 390, or QA 494));

The 494-level foundation courses are self-paced, pass/fail courses which may be used to satisfy certain MBA foundation requirements. Registration in these courses requires the permission of the Associate Dean of Graduate Programs and Research.

The Associate Dean of Graduate Programs and Research of the College of Business determines the acceptability of all work submitted in satisfaction of the foundation and prescribes appropriate courses to be taken to remove any deficiencies.

MBA Curriculum

The MBA curriculum consists of a central group of courses known as the Business Core and is supplemented by special coursework in Business Advanced Analytical Skills. Depending on the student's individual professional needs, electives in the form of Application of Business Analytical Skills can be added to yield a concentration to the MBA.

Business Core

ACCT 505 Accounting Analysis for Decision Making	3
CIS 510 Information Resource Management	3
ECON 510 Managerial Economics	3
FINC 515 Financial Management	3
MGMT 510 Contemporary Management	3
MKTG 530 Marketing Management	3
BUSN 501 Global Perspectives in Management	3
	21
Business Advanced Analytical Skills	3-6

Application of Business Analytical Skills

Electives	9-12
Total	36

A 30 hour general MBA is available with two College of Business electives. All electives must come from the College of Business unless otherwise approved by the Associate Dean of Graduate Programs and Research. A student who has recently completed an undergraduate program with specialization (major and minor) in one of the areas of business may be required to substitute a graduate business elective for the course in that area specified in the curriculum. For example, a student with an undergraduate degree in Accounting will be required to take Accounting 508 in lieu of Accounting 505. Upon approval of the Associate Dean of Graduate Programs and Research, students may transfer up to 6 hours of graduate credit toward the MBA degree. To be eligible for graduate credit, courses must have been taken at a college of business accredited by the AACSB.

MBA with a Concentration in Innovation (36 hours). The MBA with a concentration in innovation is designed to provide students with the business knowledge and analytical skills to think critically and develop innovative solutions to problems in a business environment. This concentration consists of the Business Core (21 hours), the Business Advanced Analytical Skills (6 hours), and the following courses comprising the Application of Business Analytical Skills (9 hours) (ENTR 510, 560, and 501).

MBA with a Concentration in Information Assurance (36 hours). The MBA with a concentration in Information Assurance (IA) offers students a highly distinctive MBA experience by combining the power of the MBA with specialized knowledge of IA. IA courses as a concentration in the MBA follow National Security Agency guidelines and will meet 4011 and 4016 certification requirements. This concentration prepares students for managerial positions in systems and network security and consists of the Business Core (21 hours), the Business Advanced Analytical Skills (3 hours) consisting of MGMT 595, and four of the following five courses comprising the Application of Business Analytical Skills (12 hours) (CIS 521, 522, 523, 524, 525).

MBA with a Concentration in Finance (36 hours). The MBA with a concentration in Finance consists of the Business Core (21 hours); the Business Advanced Analytical Skills (6 hours); and the Application of Business Analytical Skills consisting of FINC 516 (3 hours) and advanced Finance courses (6 hours)..

MBA with a Concentration in Telecommunications (36 hours). The MBA with a concentration in Telecommunications consists of the Business Core (21 hours), the Business Advanced Analytical Skills (3 hours) consisting of MGMT 595, and the Application of Business Analytical Skills (12 hours) consisting of two business classes (CIS 521, CIS 544), and two from a possible three engineering classes (ELEN 525, ELEN 526, and ELEN 527).

MBA programs with Concentrations in Accounting, Computer Information Systems, Economics, Management, Marketing, and Quantitative Analysis. These concentrations each require 9 hours of Application of Business Analytical Skills specific to that discipline. For curriculum descriptions or more information, contact the Associate Dean of Graduate Programs and Research, College of Business, Louisiana Tech University, Ruston, LA 71272 or refer to our web site: business.latech.edu/graduate

Executive Master of Business Administration (EMBA)

The EMBA curriculum places an emphasis on strategic thinking, leadership skills, and management decision-making for working professionals. Courses are taught on alternating weekends beginning Friday evening (5-9) and all day Saturday (8-5). The program takes 23 months to complete.

The EMBA is a thirty hour program that offers a business core of seven classes plus the capstone MGMT 595. The EMBA includes two focus courses: BUSN 500 Critical Thinking for Business (3 hours) and BUSN 594 Leadership (3 hours).

Prerequisites

To be eligible for consideration for the Executive MBA, applicants must have already completed a baccalaureate degree.

Requirements

- The following criteria will be taken into consideration when the admission decision is being made;
- Total years of professional/business work experience (minimum five years);
- Years of significant managerial experience (minimum two years);
- Level of current position (early to mid-level manager or higher) and accomplishments achieved to date;
- Undergraduate grade point average;
- Undergraduate major/degree;
- Undergraduate university;
- Graduate degree, certificate/certification, etc., if applicable;
- GMAT score required (may be waived based on other factors);
- Personal interview demonstrating potential to succeed in program;
- Maturity (ability to interact well in cohort-based program);
- Statement of Purpose;
- It is expected that successful applicants will have a GPA of 2.75 or higher and a GMAT score of at least 450.

Exceptions may be made based on professional experience, undergraduate background, and/or other professional factors.

Application procedures, application form, deadline details and other relevant information may be viewed at www.business.latech.edu/emba.

Master of Professional Accountancy (MPA)

The Master of Professional Accountancy (MPA) program is designed to provide graduate-level education in accounting for individuals seeking careers in public accounting, industry, and government. For information, contact the Director of the School of Accountancy or the Associate Dean of Graduate Programs and Research, College of Business, Louisiana Tech University, Ruston, LA 71272 or refer to our web site business.latech.edu/graduate.

Objectives and Outcomes

The MPA program will:

- Provide students with the knowledge and tools needed to obtain meaningful employment and to have successful careers;
- Prepare students for management positions;
- Provide the educational background for students to meet the educational requirements of various accounting certifications;
- Prepare students for a career in accounting.

Additionally, the MPA program has been designed to enable students to achieve the following learning objectives:

- Improve students' ability to focus on appropriate issues and develop solutions to problems where needed;
- Further refine students' oral and written communication skills;
- Broaden students' understanding of global issues;
- Expand students' understanding of professional and ethical issues faced by accountants;
- Improve students' ability to use essential technology in the accounting field.

Admission (Accounting Background)

Admission to the graduate phase of the MPA program is based upon the combination of an applicant's academic record and score on the Graduate Management Admission Test (GMAT). In some cases, at the discretion of the Associate Dean of Graduate Studies, the GRE may be accepted in place of the GMAT. In this case, the GRE score will be converted to a "GMAT equivalent" using the tool provided at the following link: www.ets.org/gre/institutions/about/mba/comparison_tool.

Applicants with a composite score (equal to 200 x UGPA + GMAT score) of at least 1,100 (1,150 when calculated using the GPA from the applicant's last 60 credit hours) and who have an undergraduate GPA of at least 2.75 and a GMAT score of at least 450 are eligible for unconditional admission to the MPA program. Applicants meeting the minimum composite score but who are not able to meet the minimum GPA or GMAT requirements may be considered for conditional to the MPA program. Students may enter the program a quarter and each student is assigned an advisor to help plan his/her program of study.

Transcripts of students entering the MPA program at the graduate level are evaluated and proper courses prescribed to satisfy the degree requirements. The undergraduate phase of the MPA program is given in the Accounting section of the undergraduate portion of this Catalog.

The graduate phase of the MPA program is given below. The graduate phase may normally be completed in one year by Accounting undergraduates who have performed satisfactorily in appropriate preparatory work. Upon approval of the Associate Dean for Graduate Programs and Research, students may transfer up to six hours of graduate credit toward the MPA degree. For transfer courses to be accepted for graduate credit, courses must have been taken at a college of business accredited by the AACSB.

Year 5

Accounting 507	3
Accounting 508	3
Accounting 513	3
Accounting 519	3
Accounting Electives**	6
Business Electives (2 500-level non-accounting)	6
Business Law 410	3
Total Semester Hours	30

*Total must include at least 15 hours of 500-level Accounting taken at Louisiana Tech.

**Accounting 505 cannot be taken as an elective. May include 400-level accounting courses approved for graduate credit.

Those without a background in accounting may also pursue the MPA. Students lacking the necessary undergraduate background may be required to complete deficiency undergraduate courses.

Doctor of Business Administration (DBA)

The Doctor of Business Administration degree is designed to prepare graduates for careers as effective university researchers and teachers or for senior research positions in business or government. The program is designed for students wishing to pursue full-time business doctoral studies in a residential program.

Objectives and Outcomes

- Research: A primary objective of the program is to train DBA candidates to become proficient researchers. Therefore, coursework involves research activities such as literature review and critique, theoretical modeling, research design, computer-assisted empirical analysis, and preparation of proposals and research papers.
- Teaching: Another objective is to train students to become proficient teachers. Most DBA candidates are provided the opportunity to teach undergraduate courses in their specialty area. DBA candidates typically are not assigned teaching responsibilities until late in their second year or in their third year in the program. Prior to being put in the classroom, doctoral candidates receive training and mentoring in the art and practice of teaching.
- Professional Activities: In addition, all business doctoral students are expected to participate in national and regional academic conferences.

Study Program

Incoming students work with the Associate Dean of Graduate Programs and Research and their departmental doctoral faculty advisor to develop an individualized formal plan of study. Each plan of study must include the following:

- 24 hours of business core course work to acquaint the student with the functional areas of business. These courses can be waived if

the student has satisfactorily completed equivalent graduate level course work at an AACSB accredited school of business.

- An in-depth major concentration (minimum of 18 hours) in Accounting, Computer Information Systems, Finance, Marketing, Management or Quantitative Analysis
- Two minor areas of at least 9 hours each, one of which must be Quantitative Analysis (statistics). These supporting areas offer the student considerable latitude in identifying a course of study that can be tailored to the individual's interests and goals.
- 9 hours of BUSN 610 which is taught only in the Fall quarter. This course offers students an orientation to doctoral studies. Each Fall section focuses on a separate topic: general orientation (first year), orientation to teaching (second year), research and presentation skills (third year)
- Dissertation (minimum 15 hours of BUSN 651)

The program of study requirements listed above are independent of each other; courses taken to satisfy one requirement may not be used to satisfy any other requirement. Previous graduate work taken prior to admission to the Louisiana Tech DBA program may be used to satisfy these requirements if it is deemed appropriate by the student's program committee and the Associate Dean of Graduate Studies. In compliance with University regulations, the DBA degree requires the completion of 60 hours of graduate work beyond the baccalaureate degree. Within the credit hour requirement is the residency requirement. To satisfy the residency requirement, a student must complete at least three consecutive quarters and a minimum of 24 semester credit hours, exclusive of research and dissertation credit, beyond the master's degree or its equivalent, on the Louisiana Tech campus. The student's advisory committee typically specifies additional coursework well beyond the 24 hour minimum residency requirement.

Examinations and Dissertation

A written comprehensive examination covering the major area and a statistical tools qualifying exam are administered after the candidate has completed the relevant coursework in his/her official plan of study. Additional examinations and other requirements (such as a second year summer paper or a minor comprehensive exam) may be required by the major. These requirements will be specified in the student's formal plan of study. All examinations are to be taken on the main campus under the direct supervision of appropriate faculty members.

Candidacy and Time Limitation

After the student has successfully passed all examinations and requirements in their plan of study, the student will be admitted to candidacy. After the students' first year of coursework, the student (except Finance DBAs) must pass a statistical tools qualifier exam. Students will be notified within four academic weeks the outcome of the exam. If a student fails the qualifier exam, he/she will have one additional opportunity to pass the qualifier about 2-3 months later. Doctoral faculty from each discipline will develop that disciplines statistical tools qualifying exam. After the second year, the student not planning to take a minor comprehensive exam is required to write and present a second year research paper as evidence of his/her applied knowledge in research. The student must complete his/her dissertation and pass the final oral examination (dissertation defense) within a maximum of three calendar years after being admitted to candidacy, with up to two one-year extensions (not guaranteed). Students must request an extension of the three-year time limit in writing. Such a request must include a discussion of the reasons for the extension, a description of the work completed to date, and a projected timetable for completion of the dissertation.

Admission to the DBA Program

To qualify for admission to the DBA program, applicants must meet the graduate admissions requirements of the Graduate School and the doctoral admissions requirements of the College. If these requirements have been or can be met, the application will be reviewed by a doctoral admissions committee to determine personal characteristics, research interests and capability, motivation and perseverance, and promise of success in high level advanced study.

The applicant's academic record and score on the Graduate Management Admissions Test (GMAT) or the equivalent GRE must demonstrate sufficient promise to indicate that s/he is qualified to perform successfully in the DBA program. More emphasis will be placed on an applicants' graduate record than on his/her undergraduate record if he/she have already earned his/her master's degree.

Admission Procedure

1. Contact the college to determine if your area of interest is accepting students in this particular year. Some programs accept students biannually.
2. Take the Graduate Management Admission Test. Arrangements can be made by calling (800) GMAT - NOW. Request that your test score be sent to the Associate Dean of Graduate Programs and Research, College of Business (code 6372), Louisiana Tech University, Ruston, LA 71272.
3. Complete a Graduate School application for admission form and pay application fee. Applications can be obtained from the Graduate School, Louisiana Tech University, P.O. Box 7923, Ruston, LA 71272, or downloaded from our website business.latech.edu/graduate. Return the completed application to the Graduate School.
4. Request official transcripts from all colleges and universities attended at any time in the past be sent to the Graduate School.
5. Send three letters of reference from persons who know your qualifications for doctoral study to the Associate Dean of Graduate Programs and Research, College of Business, Louisiana Tech University, Ruston, LA 71272. These letters should be submitted before or by the time the application is made. Also, you should send a current resume to the same address.
6. After the above 4 steps have been completed, you may be invited to participate in an interview with selected doctoral faculty. The admission decision will be made by the DBA Admissions Committee after this interview. All of an applicant's credentials will be used in making this decision.

Chapter 19 – Graduate Programs

College of Education

Administration

Dean
Donald N. Schillinger
Director, Graduate Studies & Research
John D. Harrison
Director, Certification & Professional Experiences
Dawn Basinger
Department of Curriculum, Instruction, & Leadership
Bryan McCoy, (Interim) Head
Department of Kinesiology
Lanie Dornier, Head
Department of Psychology & Behavioral Sciences
Donna Thomas, Head
Professional Development & Research Institute on Blindness
Eddie Bell, Director
A.E. Phillips Laboratory School
Joanne Hood, Director
Science & Technology Education Center
Lindsey Keith-Vincent, Interim Director

Address

More information about the College of Education can be obtained by writing to

Louisiana Tech University
College of Education
P.O. Box 3163
Ruston, Louisiana 71272
(318) 257-3712

and by visiting www.latech.edu/education

Graduate Degrees Offered

Master of Arts
- Industrial/Organizational Psychology

Master of Arts Counseling and Guidance
- Counseling and Guidance (with concentrations in Clinical Mental Health Counseling, Human Services, Orientation and Mobility, Rehabilitation Teaching for the Blind, or School Counseling)

Master of Arts in Teaching
- Early Childhood Education Grades PK-3
- Elementary Education and Special Education Mild/Moderate Grades 1-5
- Elementary Education Grades 1-5
- Middle School Education Grades 4-8 (with concentrations in Mathematics Grades 4-8, or Science Grades 4-8)
- Secondary Education and Special Education Mild/Moderate Grades 6-12 (with concentrations in English, General Science, Mathematics, or Social Studies)
- Secondary Education Grades 6-12 (with concentrations in Agriculture Education, Business Education, English Education, French Education, General Science/Biology Education, General Science/Chemistry Education, General Science/Earth Science Education, General Science/Physics Education, Mathematics Education, Social Studies Education, Spanish Education, or Speech Education)
- Special Education Early Interventionist: Birth to Five
- Special Education: Visually Impaired

Master of Education
- Curriculum and Instruction (with concentrations in Adult Education, Biology, Chemistry, Early Childhood, Early Intervention/Special Education, Economics, English, History, Library Science, Mathematics, Physics, Reading, Special Education Mild/Moderate, Technology, or Visually Impaired).
- Educational Leadership

Master of Science
- Kinesiology (with concentrations in Administration of Sport and Physical Activity, or Sports Performance)

Doctor of Education
- Education Leadership (with concentrations in Educational Leadership, or Higher Education Administration)

Doctor of Philosophy
- Counseling Psychology
- Industrial/Organizational Psychology

Graduate Certificates Offered

Graduate Certificate in Academically Gifted
Graduate Certificate in Adult Education Instructor
Graduate Certificate in Computer Literacy Education
Graduate Certificate in Early Childhood Education Grades PK-3
Graduate Certificate in Higher Education Administration
Graduate Certificate in Reading Specialist
Graduate Certificate in School Librarian
Graduate Certificate in Special Education Mild/Moderate Elementary Education Grades 1-5
Graduate Certificate in Special Education Mild/Moderate Secondary Education Grades 6-12
Graduate Certificate in Special Education-Early Intervention: Birth-5
Graduate Certificate in Teacher Leader Education
Graduate Certificate in Technology Facilitator Grades K-12
Graduate Certificate in The Dynamics of Domestic and Family Violence
Graduate Certificate in Visual Impairments–Blind Education

Mission

The mission of the College of Education is to:
- Provide high quality educational programs and experiences;
- Enhance and extend the knowledge bases of developing professionals through research and other scholarly activities;
- Extend the boundaries of knowledge through vigorous research and dissemination;
- Collaborate within the university and with the broader community; and
- Provide professional services to the community.

Goals

The mission is fostered through the following goals of the College of Education:
- To recruit, admit, and graduate quality candidates and students who exemplify the capacity and commitment to become effective public educators, school counselors, psychologists, and health promotion specialists in diverse settings throughout Louisiana and elsewhere;
- To provide education and human sciences students with quality programs of study and diverse practical experiences that prepare them to be wholly proficient in the knowledge, skills, and dispositions of their chosen areas of concentration and which are linked to competencies identified by recognized professional organizations;
- To support continuous personal and professional development opportunities for all candidates, students, and instructors;
- To recruit and retain a diverse student body;
- To recruit and retain diverse faculty who demonstrate high lev-

els of competencies in the College's programs of study and who are committed to the College's vision, mission, philosophical approaches, and professional model;
- To continue to collaborate closely with personnel in the other colleges at Louisiana Tech University as well as at other university campuses, state agencies, professional organizations, school and health systems, and the community-at-large who are involved in the preparation of teacher candidates and other program students;
- To refine curricula and instructional procedures continually ensuring that research, theory, and professional practice optimally inform all programs;
- To enable faculty and program graduates to serve as positive change agents through the implementation of innovative ideas, strategies, research, and technology;
- To generate original, quality research by faculty, candidates, and students consistent with the College programs and goals;
- To maintain a physical and psychological environment that is conducive to optimal student and faculty growth and development;
- To maintain positive interaction with alumni, corporate sector, public institutions, and other valued members of the College's external community.

Accreditation

The College of Education is a member of the American Association of Colleges for Teacher Education and of the American Association of Business Teachers. Degree programs in teacher education and related professions offered by the College of Education at the undergraduate and graduate levels are accredited by the National Council for the Accreditation of Teacher Education. The Clinical Mental Health and the School Counseling concentrations within the MA Counseling and Guidance program are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP). The PhD Counseling Psychology program is accredited by the American Psychological Association APA). For further information, please contact:

Office of Program Consultation and Accreditation
750 First Street, NE
Washington, DC 20002-4242
(P) 202-336-5979; (TDD/TTY) 202-336-6123
(FAX) 202-336-5978;

Division of Graduate Studies

The Division of Graduate Studies is administered by the Director of Graduate Studies, Education Graduate Committee, Graduate Faculty, Department Heads, and the Dean of the College. The purpose of the Graduate Studies Division is to encourage excellence in teaching, research, and service by the College of Education faculty and to administer all graduate programs offered by the College of Education.

The Education Graduate Committee consists of the Director of Graduate Studies and three Graduate Faculty appointed by the Dean of the College from the departments of Curriculum, Instruction, and Leadership; Psychology and Behavioral Sciences; Kinesiology; and one graduate student. Actions of the Education Graduate Committee are subject to approval of the Dean of the College and, when appropriate, the Teacher Education Council, the University Graduate Council, and the Dean of the Graduate School.

The Director of Graduate Studies administers the graduate programs in accordance with approved procedures. The Education Graduate Committee, chaired by the Director of Graduate Studies, establishes and reviews admission/retention policies, acts on new program or course proposals, and reviews appeals for readmission.

A Review Committee, consisting of all graduate faculty, examines the credentials of graduate faculty applicants for evidence of continued scholarly productivity according to published criteria. Recommendations for membership on the graduate faculty are then made to the Dean of the College of Education and the Dean of the Graduate School.

Graduate students in the College of Education, along with graduate students in the other academic colleges, are eligible to compete for University Graduate Assistantship positions. Inquiries concerning these assistantships should be directed to the College Office of Graduate Studies.

Master's Degree Programs

Admission Requirements: General

In addition to the general admission requirements of the Graduate School, a student seeking a Master of Education degree in any of the teaching areas must hold a teaching certificate for the area. Students desiring to enter a master's program in the College of Education should submit an official Graduate Record Examination (GRE General or GRE revised General) score *before or at the time of application.* For conditional admission, students must have a Grade Point Average (GPA) of 2.25 on all hours pursued or 2.50 on the last 60 hours. For unconditional admission, students must have a GPA of 2.50 on all hours pursued or 2.75 on the last 60 hours.

Applicants desiring to enter a master's program in the College of Education should submit official Graduate Record Examination (GRE General or GRE revised General) scores before or at the time of application. For admission, applicants must meet minimum GPA requirements established by the Graduate School and the following GRE Revised General requirements. *Unconditional admission*: combined GRE Verbal and GRE Quantitative $\geq$ 287 and neither Q nor V score may be less than 142. *Conditional admission:* combined GRE Verbal and GRE Quantitative $\geq$ 286 and neither the Verbal nor Quantitative score is less than 141. GRE General Scores (attained prior to August 2011) will be converted to the equivalent GRE revised General Scores using the ETS concordance table.

Students entering the MAT degree program must have a minimum cumulative UGPA of a 2.50 and present evidence of satisfactory completion of the PRAXIS "**I**" Reading, Writing, Mathematics and Specialty Content Exams. MAT applicants must present original score sheets of certifying scores on PRAXIS "**I**" and the content specialty exam for program admission. Certifying scores on the PRAXIS PLT must be documented prior to enrollment in student teaching or internship. An ACT composite score of 22 or greater or an SAT score of 1030 or greater for the verbal and math components combined is acceptable as a substitute for satisfactory PRAXIS I completion.

Applicants who have not taken the GRE may be conditionally admitted to Graduate School if their grade point averages are satisfactory and provided acceptable GRE scores are submitted before the end of their first term.

Life Long Learning students who do not meet the College of Education's GRE requirements for admission are eligible for admission to the Human Services concentration (only) of the Master of Arts Counseling and Guidance program, provided they attain a 3.25 GGPA in 12 graduate credit hours from required courses within the Human Services concentration and meet all other Graduate School and College of Education admission requirements.

Applicants to the Counseling and Guidance and Industrial/Organizational Psychology programs must submit acceptable GRE scores before they are admitted to those programs. A maximum of 12 semester hours earned at Louisiana Tech in a non-degree status and prior to program admission may be used to meet program requirements.

Department of Curriculum, Instruction, & Leadership

Master of Education in Curriculum & Instruction (MEdCI)

The candidate seeking a Master of Education degree in Curriculum and Instruction will be required to earn a minimum of 36 semester hours. *An approved plan of study must be submitted during the first quarter of enrollment.*

In the MEdCI program, students select a concentration of 12 hours minimum which may lead to an additional area of certification. Candi-

dates may choose adult education, biology, chemistry, early childhood, early intervention/special education, economics, English, history, library science, mathematics, physics, reading, special education mild/moderate, technology, or visually impaired. Additional information regarding the concentration areas may be obtained from the Department Head of Curriculum, Instruction, and Leadership or from the Director of Graduate Studies.

Master of Arts in Teaching (MAT)

Students may complete a 39 semester-hour program in Early Childhood Education (PK-3), Elementary Education (1-5), Middle School Education (4-8) with concentrations in middle school mathematics, and middle school science, and Secondary Education (6-12) with concentration choices in agriculture education, business education, French education, general science-biology education, general science-chemistry education, general science-earth science education, general science-physics education, mathematics education, social studies education, Spanish education, or speech education. Students may complete a 42 semester-hour program in Special Education-Early Intervention: Birth to 5, or General-Special Education Mild/Moderate Elementary Education (1-5) or Secondary Education (6-12) with concentrations in mathematics, social studies, general science, or English. Students may complete a 45 semester-hour program in Special Education-Visually Impaired.

Master of Education in Educational Leadership (MEdEL)

Students pursuing the Master of Education Educational Leadership degree must complete a 36 semester-hour program, including an internship that extends over a full P-12 school year. Candidates must also attain a satisfactory score on the Louisiana State Department of Education-identified test for educational leaders, successfully make an internship-based school improvement oral presentation to designated audiences, and receive an acceptable score on the program culminating e-portfolio (EDLE 599: E-Portfolio). Applicants must be nominated by appropriate professional individuals and meet additional specified application requirements. Applications to the Master of Education Educational Leadership program will be processed only during Spring and Summer sessions. Spring applications must be completed by April 1 and Summer applications must be completed by July 1. Applications processed during Spring Quarter will be for admission in the following Summer Quarter and applications processed during Summer Quarter will be for admission in the following Fall Quarter. For more information, contact the Department Head of Curriculum, Instruction, and Leadership or the Office of Graduate Studies in the College of Education.

All Programs

Advisors assist candidates in developing a Plan of Study during the first quarter of enrollment. *A maximum of 9 semester hours* may be transferred toward this degree with the approval of the advisor, department head, and the Director of Graduate Studies. No deviation can be made from the Plan of Study without prior permission of the advisor and the Director of Graduate Studies.

Graduate Certificate Programs

Graduate certificate programs are intended for currently certified teachers who are interested in obtaining an add-on certification and a Louisiana Tech University certificate in one of the following areas: Academically Gifted (15 semester hours), Adult Education (12 semester hours), Computer Literacy (12 semester hours), Early Childhood Education (18 semester hours), Early Interventionist (18 semester hours), Educational Technology Facilitator (12 semester hours), Higher Education Administration (12 hours), Reading Specialist (12 semester hours), School Librarian (18 semester hours), Special Education Mild/Moderate (1-5) (18 semester hours), Special Education Mild/Moderate (6-12) (18 semester hours), Teacher Leader (12 semester hours), or Visual Impairments—Blind Education (24 semester hours). The number of curriculum hours required for each certificate are subject to change. Additional information about each program may be obtained from the College of Education online at URL: http://education.latech.edu/academics/certificates/

Department of Kinesiology

Master of Science (MS)

The candidate seeking a Master of Science degree in Kinesiology will be required to earn 36 semester hours, which may include 6 semester hours for a thesis. The program in Kinesiology offers opportunities for various career interests with concentration areas in administration of sport and physical activity, and sports performance.

Sports Performance Concentration: The Sports Performance concentration is designed for individuals whose primary interest lies in improving sports performance from biomechanical, physiological, and psychological perspective. This concentration is appropriate for students who have a desire to work in athletic training, strength & conditioning, coaching, or other sports performance related fields. This concentration has a 9 hour KINE core, a 15 hour KINE concentration, 3-6 hours of research/practicum and 6-9 hours of approved electives for a total of 36 required hours.

Administration of Sport and Physical Activity Concentration: The Administration of Sports and Physical Activity concentration is designed for students whose primary interest lies in leadership positions in sport or physical activity. This concentration is appropriate for students with an interest in managing a fitness facility or sports club or those with a teaching certification who wish to pursue an administrative position such as athletic director or school administrator. This concentration has a 9 hour core, a 6 hour KINE concentration, 9 hours of management/leadership study, 3-6 hours of research/practicum and 6-9 hours of approved electives for a total of 36 required hours.

Department of Psychology & Behavioral Sciences

Master of Arts Counseling & Guidance (MA)

The Counseling and Guidance MA program is designed to prepare counselors for counseling and human service positions in educational institutions and other agencies. The program provides students with basic preparation in counseling and psychology with various elective concentrations offered to prepare students for particular institutional settings, e.g., educational, mental health, and community service agencies. The Clinical Mental Health and the School Counseling concentrations within the MA Counseling and Guidance program are accredited by the Council for Accreditation of Counseling and Related Educational Programs (CACREP).

Clinical Mental Health Counseling Concentration: The clinical mental health counseling concentration requires completion of a 60 semester hour curriculum (including a practicum and two internship courses), and prepares students for Licensed Professional Counseling roles. Students should consult their advisors for current degree requirements as described in their plan of study. The clinical mental health counseling concentration is offered on the main campus only.

Human Services Concentration: The human services concentration is intended for students who wish to enhance their knowledge of counseling and psychology, who work in human service agencies, or desire to provide human services to communities, but who do not wish to work as a professional counselor or social worker or seek licensure as such.

Orientation and Mobility Concentration: The orientation and mobility concentration requires 33 semester hours of study including a comprehensive examination, a practicum and two internships in a school setting. The orientation and mobility concentration is offered on the main campus only.

Rehabilitation Teaching for the Blind Concentration: The rehabilitation teaching for the blind concentration requires 33 semester hours of study including a comprehensive examination, a practicum and two internships in a school setting. The rehabilitation teaching for the blind concentration is offered on the main campus only.

School Counseling Concentration: The school counseling concentration requires 48 semester hours of study including a practicum and two internships in a school setting. The school counseling concentration is available on both the main campus and the TECH-Barksdale AFB instructional site.

Failure to maintain an overall grade point average of 3.0, or receipt of any grade lower than "**C**", or the receipt of more than 3 semester hours of "**C**" in any graduate course work, will result in the student being dropped from the Counseling and Guidance program.

Post-MACG Practicum and Internship Policy

Graduates of the Master of Arts Counseling and Guidance (MACG) program at Louisiana Tech University who wish to pursue licensure or Louisiana Board of Education Teacher (Counselor) Certification may enroll in Practicum and Internship courses under the following conditions and only with the prior written approval of the MACG program coordinator. Approval will be based on the following:

- The applicant is eligible for Practicum or Internship under the current program requirements, (i.e., the 48-hour school counseling curriculum or 60-hour mental health counseling curriculum); and
- There is availability of Practicum or Internship space (current program students have priority).

Under no circumstances is any post-MACG student guaranteed enrollment in practicum or internship for consecutive quarters.

Master of Arts in Industrial/Organizational Psychology (MA)

Persons trained in Industrial/Organizational Psychology frequently find employment in private and public organizations, consulting firms, and government. The candidate seeking a Master of Arts degree with a major in Industrial/Organizational Psychology must complete an approved program of study (see advisor for current degree requirements).

Failure to maintain an overall grade point average of 3.0, or receipt of any grade lower than "**C**", or the receipt of more than 3 semester hours of "**C**" in any graduate course work, will result in the student being dropped from the program.

Graduate Certificate in The Dynamics of Domestic and Family Violence

The Department of Psychology and Behavioral Sciences in partnership with the School of Human Ecology offers a 12-hour Graduate Certificate in the Dynamics of Domestic and Family Violence. The certificate is an on-line program designed to foster the development of skills related to domestic violence issues or contact with victims, their families, or perpetrators of domestic violence. Students are required to complete the following four web-based graduate courses: PSYC 511 and 556; FCS 521, and 571. Students are required to register for EDCI 598 - Certificate Completion before the deadline for registration in the quarter they are scheduled to complete their final certificate course. Substitution of coursework is accepted if preapproved by adviser, department head, and director of graduate studies.

Program Completion Requirements: Program Specific

All College of Education Programs

- Completion of all coursework on Plan of Study with minimum GPA of 3.0.
- Application for Graduation posted by University deadline.
- Satisfactory performance on a written Comprehensive Examination or culminating electronic portfolio.

MAT

- Master of Arts in Teaching (MAT) students are required to satisfactorily complete:
- A professional portfolio during the first quarter of internship;
- A program culminating assessment (EDCI 593: TWS-ePortfolio); and
- All Louisiana teacher certification requirements, including the application for a teaching certificate.

Doctoral Degree Programs

Department of Curriculum, Instruction, & Leadership

Doctor of Education (EdD) Degree

A Doctor of Education (EdD) degree in Educational Leadership is offered at Louisiana Tech University. The EdD program is designed primarily for K-12 personnel, including teachers, administrators, and school counselors. The primary goal of the doctoral program is the preparation of practitioner-scholars for roles in elementary, middle, and secondary school settings, however, some program completers may pursue careers in higher education. An individual who holds, or who is eligible to hold, a valid Louisiana Type B or Level 2 teaching certificate or has a comparable level out-of-state teaching certificate and three years of teaching experience in his or her area of certification and who successfully completes the EdD. Educational Leadership program and obtains a passing score on the current School Leaders Licensure Assessment (SLLA) may qualify for Educational Leader Certificate Level I, in accordance with state requirements.

Admission Requirements for the EdD Degree

Beginning Fall 2012, admission is to the EdD program is based upon the following criteria:

- Applicants must hold a master's degree from a regionally accredited institution in an area related to their proposed program of study.
- Applicants must have a minimum cumulative undergraduate grade point average of at least 2.50 and a minimum cumulative graduate grade point average of at least 3.25.
- Applicants must meet the following GRE Revised General requirements:
- Combined Verbal (V) and Quantitative (Q) scores > 287 and neither the Q nor the V score may be less that 142;
- GRE General Scores (scale scores obtained prior to August 2011) will be converted to GRE Revised General Scores and the appropriate criteria applied.
- Applicants must submit three letters of recommendation from individuals who are familiar with their character, teaching/administrative performance, and ability to perform academically at the doctoral level.
- Applicants should complete their admission portfolios by inclusion of a personal resume and a sample of their scholarly writing
- In addition to demonstrating evidence of academic competence and capability, those persons selected each year for this program will be applicants who are already considered leaders in their educational fields and who have clearly articulated their educational commitment. The application process is competitive.

Eligibility to Remain in the EdD Program

Students enrolled in the doctoral program must maintain a minimum grade point average of 3.00 during each term of enrollment. Failure of the student to maintain an overall graduate grade point average of 3.00 or receipt of any grade lower than "**C**" or receipt of more than 6 semester hours of "**C**" in graduate coursework will result in termination from the program. The student must successfully complete all course work with a minimum grade point average of 3.00. A graduate student who is denied admission to or further continuance in the Doctor of Education degree program may appeal for admission or readmission.

Program of Study for the EdD Degree

Coursework

The approved degree program for each doctoral student must include a minimum of 66 hours beyond the master's degree of which at least one-half must be in course work open only to doctoral students. Individuals possessing the Education Specialist Degree in the area in

which they are pursuing the doctorate must complete a minimum of 51 additional semester hours of credit for the doctorate.

The program for the Doctor of Education degree consists of the following components:

Education Foundations/Research/Statistics	12
Core Courses	24
Electives	12
Internship	6
Dissertation/Research Design Seminar	12
Minimum Total Semester Hours	66

Comprehensive Examination

The comprehensive examination, is administered when the student has completed all courses in the degree plan or is enrolled in them. This examination consists of a five-hour written component and a two-hour oral examination. Failure to complete this examination satisfactorily will result in a revision of the program of study and an additional examination. Failure to pass this examination after two attempts will result in termination of the student from the program. After satisfactory completion of the comprehensive examination, the student is admitted to candidacy.

Internship

The EdD internship is designed to provide candidates opportunities to apply the knowledge acquired in earlier program components to practical settings. The student's doctoral committee will assist the student in internship placement.

Dissertation

In addition to the research requirements associated with each course, all doctoral students are required to complete a dissertation. The dissertation should be directed toward the degree specialization and must include field-based research. Candidates are encouraged to pursue the identification of a dissertation topic and the review of the literature prior to the comprehensive examination. The dissertation prospectus must be approved by the candidate's doctoral committee after the comprehensive examination has been successfully completed. The proposed dissertation research must be reviewed and approved by the University's Human Use Committee.

The candidate will be expected to enroll for a minimum of three semester hours of dissertation credit for each quarter in which the candidate is working with faculty on the dissertation. The student must be enrolled in a minimum of three semester hours of dissertation credit during the quarter in which the degree is conferred. No fewer than twelve semester hours of credit shall be earned for successful completion of the dissertation. The candidate will orally defend the completed dissertation and to make all required revisions prior to graduation.

Doctoral Committee

The candidate's doctoral committee will consist of the major professor and a minimum of two additional faculty. Additional committee members may be added to address specific student program or research needs. The candidate's doctoral committee is selected by the student and appointed by the appropriate administrators.

Transfer of Credit for the Doctor of Education Degree

A maximum of 9 semester hours of graduate credit appropriate to the student's degree program may be transferred from other institutions offering regionally accredited graduate programs at that institution. Students are requested to submit catalog descriptions of courses under consideration. No credits for which a grade of less than "**B**" has been earned may be transferred. Neither internship nor dissertation credit may be transferred into programs.

Time Limit for the Doctor of Education Degree

All course work, internships, and the dissertation must be completed within the time line prescribed for doctoral programs by the Graduate School. Any appeal for extension must be approved by the Dean of the Graduate School.

Policies and Procedures

Additional information about Doctor of Education (EdD) program policies and procedures is available online at: www.latech.edu/education/graduate_studies/programs/.

Department of Psychology & Behavioral Science

The Doctor of Philosophy Degree–Counseling Psychology (PhD)

The Department of Psychology and Behavioral Sciences offers the PhD degree in Counseling Psychology. The Doctor of Philosophy (PhD) degree in Counseling Psychology embodies a balanced training experience designed to train professional psychologists in the scientist-practitioner model. The primary goal of the program is to produce professional psychologists who are competent in both research and professional practice. The PhD Counseling Psychology program is accredited by the American Psychological Association (APA). For further information, please contact:

Office of Program Consultation and Accreditation
750 First Street, NE
Washington, DC 20002-4242
(P) 202-336-5979; (TDD/TTY) 202-336-6123
(FAX) 202-336-5978; (E) apaaccred@apa.org

Admission Requirements

Application for admission requires a completed Graduate School Application form, Graduate Record Examination (GRE General or GRE revised General) scores, official transcripts of all college or university work, three letters of reference, a professional vita, and a statement of purpose. Other requisites may be specified by the program and department such as, but not limited to, interviews and statements of intent, philosophy, and professional goals. Students are admitted to the program on a yearly basis in the Fall quarter of each year.

Admission to Louisiana Tech University's Counseling Psychology PhD program is competitive. Meeting minimal admission standards of the University or College does not guarantee admission. The Counseling Psychology Admissions Committee carefully reviews all applicants and selects those determined to be best qualified and best suited for training in the profession of Counseling Psychology. In addition to demonstrating evidence of academic competence and capability, persons selected for this program are expected to show personal maturity, interpersonal confidence, and an outstanding ability to accept feedback and work cooperatively with faculty and peers.

Degree Requirements

Students admitted to the program will receive current degree requirements from their advisor. All students must complete required coursework, a qualifying research project, a minimum of 1000 hours in practicum training, a supervision training experience, a dissertation based on original research, and a one-year full-time counseling psychology internship. The program is a full-time in-residence (including summers) program normally requiring 5 to 6 calendar years to complete.

Eligibility to Remain in the PhD Counseling Psychology Program

Each student's academic performance, progress toward degree completion, and professional performance will be reviewed at least annually by the Counseling Psychology Core Faculty Training Committee. Reviews may occur more frequently if judged appropriate or necessary by a vote of the Counseling Psychology Core Faculty Training Committee. A student who does not meet the minimal grade point average requirements specified by the Graduate School and Department (a minimum grade point average of 3.0; no grade lower than "**C**"; no more than 6 semester hours of "**C**" grades in the program) or is not meeting professional and ethical standards as determined by the

Counseling Psychology Core Faculty Training Committee may be dismissed from the Counseling Psychology Program. Other reasons for dismissal include, but are not limited to, academic dishonesty, violations of provisions of the American Psychological Association's Standards for Ethical Conduct, and certain legal violations.

Program of Study for the PhD in Counseling Psychology

Coursework

The approved degree program for each doctoral student must include 108 semester hours plus internship and dissertation. Because of the dynamic nature of Counseling Psychology as a discipline, the curriculum is subject to refinement.

Each student's program of study will be individualized to some degree, based on that student's past training, experiences, coursework, needs, interests, and resources.

Qualifying Research Project

Students must complete a qualifying research project by the end of the second year. Students are expected to exhibit mastery in research design and analysis through completion of the project. This project is designed to ensure that doctoral students have mastered minimal standards in their knowledge of research design, methodology, and data analysis. A student entering the program with a master's degree who has completed a master's level thesis may submit it for approval as the qualifying research project.

Doctoral Comprehensive Examination

After an appropriate amount of coursework (minimum of 2 years or equivalent), and the qualifying research project has been completed, and after approval from his or her advisor, the student may register for and take the Doctoral Comprehensive Examination in Counseling Psychology (PSYC 685). Successful completion of the Doctoral Comprehensive Examination is required prior to acceptance of internship offers, and/or registration for dissertation hours.

The purpose of the Doctoral Comprehensive Examination is both educative and evaluative. This examination is designed to assess whether minimal competencies in the substantive areas of counseling psychology have been achieved through coursework and training experiences.

Content areas for the examination include the following:

1. Psychological Assessment and Diagnosis;
2. Theories of Psychotherapy and Intervention;
3. Research Design and Statistics;
4. Professional Issues and Ethics;
5. Career/Vocational Assessment, and Counseling;

Students who fail any sections one time will be allowed to retake the section a second time after remediation. The remediation process will be determined by the Core Counseling Training Committee and may consist of retaking classes, completion of supervised work, or any other educational or training exercise that the Core Committee feels is applicable. A student failing any section of the comprehensive examination two times will be dismissed from the program.

After satisfactory completion of the Doctoral Comprehensive Examination, the student is granted doctoral candidacy and must be continuously enrolled in dissertation hours (PSYC 660A-C) until graduation.

Practicum Training

Practicum serves to ensure the competence of students in both the science and practice of Counseling Psychology. That is, throughout their practica experiences, students are expected to integrate relevant research findings with their clinical practice. Students are expected to begin practicum during the Summer Quarter after their first year in the program. A 12-month beginning practicum experience, which involves supervised practicum placement at the Psychological Services Clinic (PSC) and practicum courses on campus, is followed by a similar more advanced 12-month experience either on or off campus. Following these two practica experiences (beginning and advanced), students may elect to continue receiving supervised clinical experiences in independent field placements.

Dissertation

One of the core components of the doctoral program in Counseling Psychology is the successful completion of a dissertation. The dissertation is an integral part of the doctoral program and its completion demonstrates that a student has successfully acquired and mastered the fundamental components of conducting independent empirical research. The dissertation consists of original empirical research conducted under the direction of a Dissertation Chair and Dissertation Committee. A student must enroll in a minimum of 6 total semester credit hours for dissertation, and must enroll in at least 1 semester credit hour of dissertation every quarter after successful completion of the Doctoral Comprehensive Examination in Counseling Psychology. Following completion of the dissertation, the student is required to publicly defend this scholarly work.

Internship

Counseling psychology doctoral students are required to complete a predoctoral internship (PSYC 624) which must equate to one calendar year of full-time supervised counseling psychology experience (4 to 12 semester hours). Ideally, internship sites will be American Psychological Association (APA)-accredited. However, at minimum the site must be Association of Psychology Postdoctoral and Internship Centers (APPIC)-approved or be reviewed and approved by the Director of Training and the Core Committee prior to commencing the internship. Before accepting a predoctoral internship, the student must be in good academic standing as certified by the Director of Training and must have received specific permission to accept the internship from the Core Committee.

Transfer Credits

With the approval of the student's advisor/mentor, the Core Training Committee, and the College Director of Graduate Studies, a maximum of 27 graduate-level semester credit hours from another accredited university may be transferred to the PhD program in Counseling Psychology. Typical courses that are approved for transfer are foundational courses, basic counseling theories/skills courses, and assessment courses, as well as electives. The student initiates the process with his/her advisor/mentor, who then presents the student's materials to the Core Committee in order to gauge equivalency of transfer coursework. If a course from another institution is approved for transfer credit, the student assumes full responsibility for material covered in the course for which it substitutes (e.g. with respect to the Doctoral Comprehensive Examination). All transfer request paperwork must be completed and submitted by the end of the student's first quarter of enrollment in the program.

Time Limit for the PhD in Counseling Psychology

The doctoral degree in counseling psychology *must* be completed within 7 years after admission to the program.

Curriculum

The curriculum may be obtained by writing to:
Director of Training
Doctoral Program in Counseling Psychology
Department of Psychology and Behavioral Sciences
P.O. Box 10048
Ruston, LA 71272
or http://education.latech.edu/academics/graduate/phd_counseling_psychology/.

The Doctor of Philosophy Degree Industrial/ Organizational Psychology (PhD)

The Industrial/Organizational Psychology program prepares students to work in areas relating to applied behavioral science in organiza-

tions and business. Outside of class, students are expected to gain hands-on experience through involvement on various research and applied project teams with faculty supervision. The Ph.D. program involves rigorous preparation in psychological foundations, research methods/statistical analysis, Industrial/Organizational Psychology, and successful completion and defense of a dissertation involving original research. The program generally requires three to four years of full-time study post-baccalaureate. The actual amount of time needed varies depending on student prior preparation (a limited amount of credit may be requested for prior graduate work) and progress in the program. All students accepted into the program receive a graduate assistantship with a stipend.

Admission Requirements

Application for admission requires a completed Graduate School Application form, Graduate Record Exam (GRE) scores, official transcripts of all college or university work, three letters of reference, a professional vita, and a statement of purpose. Other requisites may be specified by the program and department such as, but not limited to, interviews and statements of intent, philosophy, and professional goals. Students are admitted to the program on a yearly basis in the Fall quarter of each year. Admission to Louisiana Tech University's Industrial/Organizational Psychology PhD program is competitive. Meeting minimal admission standards of the University or College does not guarantee admission. The Industrial/Organizational Psychology Admissions Committee carefully reviews all applicants and selects those determined to be best qualified and best suited for training in the profession of Industrial/Organizational Psychology. In addition to demonstrating evidence of academic competence and capability, persons selected for this program are expected to show personal maturity, interpersonal confidence, and an outstanding ability to accept feedback and work cooperatively with faculty and peers.

Degree Requirements

Students admitted to the program will receive current degree requirements from their advisor. All students must complete required coursework, a qualifying research project, practicum training, a supervision training experience, and a dissertation based on original research. The program is a full-time in-residence (including summers) program normally requiring 3 to 4 calendar years to complete.

Eligibility to Remain in the PhD Industrial/Organizational Psychology Program

Each student's academic performance, progress toward degree completion, and professional performance will be reviewed at least annually by the Industrial/Organizational Psychology Core Faculty Training Committee. Reviews may occur more frequently if judged appropriate or necessary by a vote of the Industrial/Organizational Psychology Core Faculty Training Committee. A student who does not meet the minimal grade point average requirements specified by the Graduate School and Department (a minimum grade point average of 3.0; no grade lower than C; no more than 6 semester hours of "**C**" grades in the program) or is not meeting professional and ethical standards as determined by the Industrial/Organizational Psychology Core Faculty Training Committee may be dismissed from the Program. Other reasons for dismissal include, but are not limited to, academic dishonesty, violations of provisions of the American Psychological Association's Standards for Ethical Conduct, and certain legal violations.

Program of Study for the PhD in Industrial/Organizational Psychology

Coursework

The approved degree program for each doctoral student must include 84 semester hours and dissertation. Because of the dynamic nature of Industrial/Organizational Psychology as a discipline, the curriculum is subject to refinement. Each student's program of study will be individualized to some degree, based on that student's past training, experiences, coursework, needs, interests, and resources.

Qualifying Research Project

In lieu of a qualifying examination, all students must complete a qualifying research project prior to taking the doctoral level comprehensive examination. Students are expected to exhibit mastery in research design and analysis through completion of the project. This project is designed to ensure that doctoral students have mastered minimal standards in their knowledge of research design, methodology, and data analysis. A student entering the program with a master's degree who has completed a master's level thesis may submit it for approval as the qualifying research project.

Doctoral Comprehensive Examination

After an appropriate amount of coursework (minimum of 2 years or equivalent), and the qualifying research project has been completed, and after approval from his or her advisor, the student may register for and take the Doctoral Comprehensive Examination in Industrial/Organizational Psychology. Successful completion of the Doctoral Comprehensive Examination is required prior to acceptance of internship offers, and/or registration for dissertation hours. The purpose of the Doctoral Comprehensive Examination is both educative and evaluative.

Students who fail any sections one time will be allowed to retake the section a second time after remediation. The remediation process will be determined by the Core Industrial/Organizational Training Committee and may consist of retaking classes, completion of supervised work, or any other educational or training exercise that the Core Committee feels is applicable. A student failing any section of the comprehensive examination two times will be dismissed from the program. After satisfactory completion of the Doctoral Comprehensive Examination, the student is granted doctoral candidacy and must be continuously enrolled in dissertation hours (PSYC 660A-C) until graduation.

Practicum Training

Practicum serves to ensure the competence of students in both the science and practice of Industrial/Organizational Psychology. That is, throughout their practica experiences, students are expected to integrate relevant research findings with their practice.

Dissertation

One of the core components of the doctoral program in Industrial/Organizational Psychology is the successful completion of a dissertation. The dissertation is an integral part of the doctoral program and its completion demonstrates that a student has successfully acquired and mastered the fundamental components of conducting independent empirical research. The dissertation consists of original empirical research conducted under the direction of a Dissertation Chair and Dissertation Committee. A student must enroll in a minimum of 9 total semester credit hours for dissertation, and must enroll in at least 1 semester credit hour of dissertation every quarter after successful completion of the Doctoral Comprehensive Examination in Industrial/Organizational Psychology. Following completion of the dissertation, the student is required to publicly defend this scholarly work.

Transfer Credits

With the approval of the student's advisor, the Core Committee, the Department Head, the Director of Graduate Studies of Graduate Studies, and the Dean of the College of Education a maximum of 18 graduate-level semester credit hours from another accredited university may be transferred to the PhD program in Industrial/Organizational Psychology. Students will work with their advisor who will then present each student's materials to the Core Committee in order to gauge equivalency of transfer coursework. For students who have prior doctoral coursework, requests for transfer of more than 18 semester credit hours will be handled on a case-by-case basis. If a course from another college or university is approved for transfer credit, the student still has full responsibility for material covered in the comparable Louisiana

Tech course that is part of the doctoral program curriculum and assessed by the comprehensive exam. This issue is particularly important because the comprehensive examination might contain material covered in a Louisiana Tech course that was not covered in a course for which transfer credit was obtained. Students need to ensure their own adequate preparation for the Doctoral Comprehensive Examination in Industrial/Organizational Psychology.

Time Limit for the PhD in Industrial/Organizational Psychology

The doctoral degree in Industrial/Organizational Psychology must be completed within 6 years after admission to the program.

Curriculum

The curriculum may be obtained by writing to:
Director of Training
Doctoral Program in Industrial/Organizational Psychology
Department of Psychology and Behavioral Sciences
P.O. Box 10048
Ruston, LA 71272
or on the web at http://education.latech.edu/academics/graduate/phd_io_psychology/

Chapter 20 – Graduate Programs
College of Engineering and Science

Administration

Dean
Hisham E. Hegab
Associate Dean, Undergraduate Studies
Vacant
Associate Dean, Graduate Studies
James D. Palmer
Executive Associate Dean, Research
Bala Ramachandran
Biomedical Engineering
Vacant, Director
Steven A. Jones, Program Chair
Chemical Engineering
Vacant, Director
Daniela Mainardi, Program Chair
Chemistry
Lee Sawyer, Director
Collin Wick, Program Chair
Civil Engineering
David Hall, Director
Jay Wang, Program Chair
Computer Science
Sumeet Dua, Director
Jean Gourd, Program Chair
Construction Engineering Technology
David Hall, Director
Norm Pumphrey, Program Chair
Cyber Engineering
Sumeet Dua, Director
Vacant, Program Chair
Electrical Engineering
Sumeet Dua, Director
Davis Harbour, Program Chair
Electrical Engineering Technology
Sumeet Dua, Director
Vacant, Program Chair
Industrial Engineering
Katie Evans, (Interim) Director
Jun-Ing Ker, Program Chair
Mathematics and Statistics
Katie Evans, (Interim) Director
Dave Meng, Program Chair
Mechanical Engineering
David Hall, Director
Henry Cardenas, Program Chair
Nanosystems Engineering
Lee Sawyer, Director
Sandra Zivanovic, Program Chair
Physics
Lee Sawyer, Director
Kathleen Johnston, Program Chair

Address

More information about the College of Engineering and Science can be obtained by writing to

College of Engineering and Science
Louisiana Tech University
P.O. Box 10348
Ruston, LA 71272
(318) 257-4647

and by visiting www.latech.edu/coes.

Graduate Degrees Offered

Master of Science Computer Science (MSCS)
- Computer Science

Master of Science Engineering (MSE)
- Engineering (with concentrations in Biomedical, Chemical, Civil, Communication Systems, Electrical, Industrial, or Mechanical Engineering)

Master of Science Microsystems Engineering (Professional Track) (MSMSE)
- Microsystems Engineering

Master of Science Engineering & Technology Management (MSEM)
- Engineering and Technology Management (with concentrations in Engineering Management, and Management of Technology)

Master of Science (MS)
- Mathematics
- Applied Physics

Master of Science Molecular Science and Nanotechnology (MSMSNT)
- Molecular Science and Nanotechnology

Doctor of Philosophy (PhD)
- Biomedical Engineering
- Computational Analysis and Modeling
- Engineering (with concentrations in Cyberspace, Engineering Education, Engineering Physics, Materials and Infrastructure Systems, and Micro- and Nano-scale Systems)
- Molecular Science and Nanotechnology

Graduate Certificates Offered

Graduate Certificate in Communications Systems

Requirements for Admission

Students seeking admission to a graduate program are required to have an earned bachelor's degree from an accredited college or university and must satisfy the admission requirements outlined under the "Graduate School" section of this Catalog. An official Graduate Record Examination (GRE) score is required for admission, but this requirement may be waived for exceptionally qualified students. Academic programs within the College may have additional requirements, and these are published on the respective program web pages.

Financial Assistance

Financial assistance is available to qualified graduate students in the form of a limited number of graduate assistantships. Out of state tuition is waived for students who are awarded assistantships. A limited number of fellowships are available to students in the doctoral programs; these fellowships may also include a full tuition waiver.

Graduate assistants are required to be full-time students (enrollment of 6 semester hours of graduate credit per quarter). The maximum load allowed is 9 credit hours per quarter for a graduate assistant.

Theses and Dissertations

A required element of the Master of Science degree (thesis plan) is a thesis describing the student's research which is approved by the student's Advisory Committee, the Director of Graduate Studies, and

the Dean of Graduate School. See the subsection on "The Thesis" in Chapter 15 of this Catalog for more details.

A required element of the doctoral programs is a dissertation describing the student's research, approved by the student's Advisory Committee, the Director of Graduate Studies, and the Dean of Graduate School. See the subsection on "Research and Dissertation" in Chapter 15 of this Catalog for more details.

Submission of Thesis/Dissertation Proposals

Proposals describing the work to be done for a thesis (MS) or dissertation (Ph.D.) are required. Thesis proposals (MS) are due during the student's second quarter of enrollment in the given degree program and dissertation proposals (PhD) are due during the student's fourth quarter of enrollment.

Change of Thesis or Dissertation Advisor

After a thesis/dissertation proposal has been submitted, the student may appeal for a change of advisor only under extreme circumstances. A written request for a change of advisor, including a description of the circumstances leading to the request and an explanation of why the student believes this is the only course of action remaining to be explored, must be submitted to the Director of Graduate Studies. The final decision on the matter rests with the Dean of Graduate School. If the appointment of a new advisor is appropriate, a new thesis/dissertation topic may also have to be adopted.

Presentation of Thesis/Dissertation Research

An oral presentation of each student's research for thesis or dissertation is required, which will be open to all faculty and students. This requirement may be waived only in cases where disclosure of classified or proprietary information is unavoidable.

The Masters' Degree Programs

General Requirements

- Thesis Plan. The student will be required to complete a minimum of 30 semester credit hours (SCH) for graduate credit, of which a maximum of 6 hours will be earned in Research and Thesis. A minimum of 21 hours out of the 30 must be earned in courses open only to graduate students.
- NonThesis Plan. A minimum of 36 SCH of graduate course work will be required, of which a maximum of 3 hours will be earned in Practicum. The practicum option is available in all MS programs except the professional MS degrees in the College. In this track, a maximum of 3 hours will be earned by taking the Practicum course and satisfying the requirements. The practicum shall involve an advanced topic approved by the student's advisory committee. Also, a minimum of 18 out of the 36 hours must be earned in courses open only to graduate students. MS in Engineering also offers a coursework-only track, in which a minimum of 21 out of the 36 hours must be earned in courses open only to graduate students.
- Professional track degrees. These require a minimum of 33 graduate hours of courses, as described under the specific degree programs that offer this option.

These minimum requirements apply to all Master of Science degrees offered by the College of Engineering & Science. Specific degree programs may have additional requirements, as stated below.

The exercise of these options and the choice of courses will be proposed as a Plan of Study by the student and his/her Advisory Committee subject to review and approval (in order) by the major program chair, the Director of Graduate Studies, the Dean of the College of Engineering and Science, and the Dean of the Graduate School. The transfer of graduate credit from another graduate institution, graduate credit by examination, graduate credit as a graduating senior, or credit earned other than as a regularly enrolled graduate student in the College of Engineering and Science at Louisiana Tech must meet all University standards and is also subject to approval as part of the Plan of Study. Courses taken for graduate credit while the student is registered in the non-degree category will not be applied to a degree program without approval by the student's Advisory Committee and the Director of Graduate Studies.

A minimum Graduate Grade Point Average (GPA) of 3.00 is required in order to maintain "good academic standing" while in graduate school. Additional information is given in Chapter 15 of the Graduate School section of this Catalog.

Individual Requirements

Individual programs may, upon approval by the Dean of the College of Engineering and Science, impose additional requirements, such as written comprehensive exams.

Master of Science Computer Science (MSCS)

The computer science program offers in-depth study and research in systems, theory, algorithms, and applied aspects of computer science. Completion of the master's degree will prepare a student for employment in government and industry and for doctoral programs in computer science.

Students entering the master's program in computer science will be expected to have a background equivalent to the bachelor's program in computer science at Louisiana Tech. Any core computer science courses in the BS program at Tech will be considered deficiency courses for master's students if they have not taken equivalent courses in their bachelor's programs. A student may challenge a deficiency course by successfully completing a comprehensive examination and, as appropriate, programming projects. Both thesis and non-thesis options are available.

Master of Science Engineering (MSE)

For students desiring to pursue a concentration in biomedical, chemical, civil, electrical, industrial, or mechanical engineering, or communications systems, a baccalaureate degree with a major in the same engineering discipline from an Accreditation Board for Engineering and Technology (ABET) accredited program is the best preparation. Students who do not possess this background are not discouraged from applying, but, in general, must expect some nongraduate credit background work in order to pursue their graduate program effectively and successfully. As the master's degree is generally accepted as a higher level of intellectual accomplishment than the baccalaureate degree, the student must expect his/her program to be structured accordingly. The student will be required to remove any deficiencies in mathematics, science, engineering, and communication. In particular, students with a baccalaureate in mathematics or the physical sciences should expect remedial courses stressing engineering analysis, synthesis, and design.

Master of Science Engineering and Technology Management (MSETM)

The engineering management program is a practice-oriented professional track master's degree and focuses on managing technology and engineering functions. The program includes 33 SCH of coursework. Applicants should have a bachelor's degree in engineering, science, or technology disciplines. Applicants in other degree fields with technical work experience are also encouraged to apply. A minimum GRE of 293 (Q+V) is required but may be waived for applicants with two or more years of relevant work experience and an undergraduate GPA of 3.00 or greater.

Two concentrations are available in the curriculum: Engineering Management, and Management of Technology. A Bachelor's degree in an engineering or science discipline is the minimum qualification for admission for the former. The second concentration is less restrictive but the core courses will cover introductions to essential aspects of modern technologies, such as Microsystems, Nanotechnology, and Biotechnology.

Master of Science (MS) - Mathematics

The Mathematics and Statistics Program offers in-depth studies in algebra, analysis, differential equations, probability and statistics, applied mathematics, and computational mathematics.

In addition to the University requirements for admission, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in mathematics of not less than 30 semester hours. By the end of the first quarter of enrollment, the student is to choose one area of interest. An Advisory Committee that reflects the student's major area of interest will then be appointed.

Each candidate for the MS degree must satisfy the conditions in one of the following two plans:

Plan A: Thirty semester hours of graduate credit must be earned. A minimum of 24 semester hours, 6 of which are to be for an acceptable thesis, must be earned in the Mathematics and Statistics Program. The remaining 6 semester hours of graduate courses may be chosen from a related field if approved by the Advisory Committee.

Plan B: Thirty six semester hours of graduate credit must be earned. A minimum of 27 semester hours, 3 of which are to be for a practicum, must be in the Mathematics and Statistics Program. Up to 9 graduate hours may be chosen from a related field if approved by the Advisory Committee. The Practicum will be a study in some area of mathematics or statistics not normally covered in a regularly scheduled course, or it will be a solution to a problem that requires mathematics or statistics at the graduate level.

Master of Science Microsystems Engineering (MSMSE)

The Microsystems Engineering professional track MS degree offers students an opportunity to learn microsystems and nanosystems engineering principles and obtain hands-on laboratory experience in microfabrication and microelectronics with state-of-the-art equipment. The degree requires 33 SCH of coursework and entails no thesis or research-based practicum. It is possible to complete this degree within one calendar year.

Master of Science Molecular Sciences and Nanotechnology (MSMSNT)

The College of Engineering and Science offers an interdisciplinary MS degree in Molecular Sciences and Nanotechnology (MSNT) in collaboration with the College of Applied and Natural Sciences. Please see Chapter 16 of this Catalog for more information.

Master of Science (MS) – Applied Physics

The physics program offers instruction and opportunities for research in the areas of solid state physics, high energy physics, computational physics, and nuclear physics. The completion of the master's program will prepare the student for further work toward the doctorate degree as well as for employment in government and industry.

In addition to the admission requirements of the Graduate School, the applicant must have a bachelor's degree with the equivalent of an undergraduate major in physics.

The minimum residence requirement for the master's degree with a major in physics is 3 quarters.

Each candidate for the MS degree must satisfy the conditions in one of the following two plans:

Plan A: The candidate for the master's degree must complete a minimum of 24 semester hours of graduate credit in physics plus Math 502 and Math 544, or other courses acceptable to his/her thesis committee. Six of the required 30 hours must be earned by taking Physics 551, Research and Thesis, and by completing an acceptable master's thesis.

During the first quarter of residence, the student must take a preliminary oral examination over undergraduate physics. In addition, the student must pass an oral examination on his/her thesis.

Plan B: The candidate must earn 36 hours in this nonthesis plan as approved by his/her Advisory Committee. At least 27 hours must be in 500-level courses in the physics program and 9 hours in mathematics or other courses acceptable to the student's Advisory Committee. During the first quarter of residence, the student must take a preliminary oral examination over undergraduate physics. In addition, the student must pass an oral examination over his/her graduate work

Graduate Certificate in Communications Systems

The Electrical Engineering Program of the College of Engineering and Science in partnership with the School of Accountancy and Information Systems of the College of Business offers a 15 semester credit hour graduate certificate in communications systems. The certificate is designed for students with general responsibilities and interests in telecommunications engineering, information technology, or information systems. No prerequisites are needed other than a baccalaureate degree. Students are required to complete the following five graduate courses: ELEN 525, ELEN 526, ELEN 527, CIS 521 and CIS 544. Substitution of coursework may be accepted subject to approval by adviser and associate dean of graduate studies.

Doctoral Degree Programs

The Louisiana Tech University College of Engineering & Science offers four doctoral programs. A Doctor of Philosophy degree is offered in Biomedical Engineering. An interdisciplinary Doctor of Philosophy degree in Engineering is offered in which the research is aligned with three Centers of Excellence - the Center for Applied Physics Studies, the Institute for Micromanufacturing, and the Trenchless Technology Center. The College is also the major participant in the Interdisciplinary Doctor of Philosophy degree in Computational Analysis and Modeling (CAM) and is a partner in the combined MD/PhD (Biomedical Engineering) Program with Louisiana State University Medical Center – Shreveport.

Admission to the Doctoral Programs

An official GRE score is required for admission. This requirement may be waived for exceptionally qualified students. Each doctoral program has its own specific admission criteria. These are published on the web pages describing these programs.

Applicants who do not possess the required background for unconditional admission to doctoral programs are encouraged to seek admission to a Master's program in the College on a conditional basis and take remedial courses to address any deficiencies identified in their undergraduate curriculum. Typically, most or all of the graduate courses taken for the MS degree will be applicable to the doctoral degree.

The Doctor of Philosophy - Biomedical Engineering (PhD)

The program is designed such that students will

- Demonstrate command of advanced engineering principles and their applications in medicine and biology;
- Understand the research process and demonstrate capability to conduct independent research;
- Disseminate their research findings to the broader scientific community;
- Develop a sense of professional ethics, responsibility, and service.

The foundation of the program is a balance of intensive and extensive formal course work, a sequence of examinations, and the production of a dissertation.

The PhD requires a minimum of 66 hours total. A minimum of 15 hours must be earned in BEIN 651, Research and Dissertation. An additional minimum of 48 hours must be earned in graduate course work as follows:

- A core sequence of 15 hours that includes BIEN 500 (4 hours), BIEN 501 (4 hours), BIEN 510 (4 hours) and BIEN 610 (3 hours).

- One course in Statistics (3 hours) and one additional course in either Mathematics or Statistics (3 hours).
- Additional courses (15 hours) in engineering disciplines.
- Additional courses (12 hours) which may be in Engineering, but may also be selected courses in Biology, Chemistry, Mathematics, Physics, and Computer Science. Up to 6 hours of these courses may be taken from disciplines not listed above if the student's committee agrees that these courses are appropriate to the student's dissertation topic.

Choice of acceptable graduate-level courses, including choice and composition of major and minor areas, will be established by the Advisory Committee in concert with the doctoral student, subject to approval as part of the Plan of Study.

All students are required to enroll in the doctoral seminar course BIEN 610 each Fall quarter.

No foreign language is required for the PhD in Biomedical Engineering. English is the language of communication, and both oral and written proficiency in English are important.

The schedule of examinations consists of a PhD qualifying examination, an oral defense of the PhD research proposal, and a defense of the PhD dissertation.

The qualifier exam is taken after the student completes the core BIEN courses, and is typically held during the winter quarter of the student's second year of study. Students must enroll in BIEN 685 to take the qualifier exam.

The student's Advisory Committee consists of at least 5 faculty members who help to guide the student through different aspects of his/her research. At least 60% of all those serving on the Advisory Committee must recommend that the student has satisfactorily passed any of the PhD examinations. None of the examinations may be taken more than 2 times. Advisory Committees must have at least 3 biomedical engineering faculty members, including one who serves as the chairperson, regardless of the student's project topic and research supervisor.

The Doctor of Philosophy - Computational Analysis and Modeling (PhD)

The College of Engineering and Science is the major participant in the interdisciplinary PhD in Computational Analysis and Modeling (CAM). See Chapter 16 of this Catalog for a more detailed program description.

The Doctor of Philosophy - Engineering (PhD)

The PhD in Engineering is an interdisciplinary degree with a strong research emphasis. The program prepares candidates for both academic and industry careers. Interdisciplinary graduate degrees have been advocated in recent reports by the National Academy of Engineering and the National Research Council, among others. This degree provides five concentration areas, namely, (a) Cyberspace, (b) Engineering Education, (c) Engineering Physics, (d) Micro and Nanoscale Systems, and (e) Materials and Infrastructure Systems.

Students in this program are expected to complete 66 graduate hours (including dissertation) beyond the baccalaureate degree. These hours will be approved as part of a comprehensive plan of study by the student's PhD Advisory Committee. Eighteen credit hours of core courses are required of all students in the program. These courses are intended to provide a strong fundamental set of research capabilities and to help individual students bridge the gap to other disciplines preparatory not only to dissertation work but also to their future career. The remaining courses are chosen in relation to the thematic areas, which currently are microelectronics, micromanufacturing, and materials and construction systems.

All students are required to enroll in the doctoral seminar course ENGR 610 each Fall quarter.

A student must register for a minimum of 18 credit hours in Research and Dissertation (ENGR 651). The topic will be selected in accordance with and approved by the student's Advisory Committee and the Director of Graduate Studies.

The schedule of exams consists of a comprehensive examination at or near the completion of formal coursework and a defense of the dissertation. The comprehensive examination consists of written and oral parts organized by the Ph.D. in Engineering Steering Committee. At least 60% of the faculty serving on the Advisory Committee must recommend that the student has satisfactorily passed any of the examinations. None of the examinations may be taken more than three times.

The minimum residence requirement for the doctoral degree is 8 quarters beyond the bachelor's degree. The student is required to spend at least 3 quarters beyond the first year of graduate study in continuous residence. The transfer of course work from a recognized graduate school carries with it the transfer of residence credit, but a minimum of 24 semester hours of graduate credit beyond the first year of graduate study must be earned in residence at Louisiana Tech University. PhD students are required to complete the doctoral program in its entirety within 3 years after successful completion of the comprehensive examination

The Combined MD/PhD Degree Program

The combined MD/PhD program is designed to promote the education of physician-scientists by allowing qualified students to progress concurrently through the School of Medicine at Louisiana State University-Shreveport to earn an MD and the Graduate School at Louisiana Tech University to earn a PhD in Biomedical Engineering, in a more efficient and productive manner than could be otherwise accomplished. The program is administrative in nature and does not alter the degree requirements, curricula, courses, or admission requirements at either school.

Application

Students who have not matriculated in either school shall make separate application to the School of Medicine at Louisiana State University-Shreveport and the Graduate School at Louisiana Tech University, and to the MD/PhD Program through the MD/PhD Program Supervisory Committee. Students must be accepted by each of the schools and by the MD/PhD Program Supervisory Committee.

Students will meet the admission and program requirements of each school and will maintain the level of good standing requirement by each school to continue in the program, including GPA > 3.0 in all coursework and no failing grades.

Special circumstances and exceptions may be considered by the MD/PhD Supervisory Committee. Exceptions may be implemented if approved by the MD/PhD Supervisory Committee and the Deans of the respective schools.

Chapter 21 – Graduate Programs

College of Liberal Arts

Administration

Dean
Donald P. Kaczvinsky
Associate Dean
Stephen Webre
School of Communication
Brenda L. Heiman, Director
School of Design
Karl Puljak, Director
School of History and Social Science
Jason Pigg, Director
School of Literature and Language
Susan Roach, Director
School of the Performing Arts
Mark D. Guinn, Director
Department of Professional Aviation
Jordan G. Lyons, Head

Address

More information about the College of Liberal Arts can be obtained by writing to the following address:

College of Liberal Arts
P.O. Box 10018
Louisiana Tech University
Ruston, LA 71272

and by visiting www.latech.edu/liberal-arts.

Graduate Degrees Offered

Master of Architecture
- Architecture

Master of Arts
- English (with concentrations in Literature or Technical Writing)
- History
- Speech (with concentrations in Speech Communication or Theatre)
- Speech Pathology

Master of Fine Arts
- Art (with concentrations in Graphic Design, Photography, and Studio)

Doctor of Audiology
- Audiology

Graduate Certificates Offered

Graduate Certificate in Technical Writing and Communication

Admission Requirements

GRE scores are one factor used in evaluating applications for graduate studies in the College of Liberal Arts. Academic units in the College of Liberal Arts may differ in their use of GRE scores as a factor for evaluating applications in their respective degree program (if approved by the Graduate School). If a requirement, students applying for graduate programs in the College of Liberal Arts must submit GRE scores at least four weeks prior to registration. Only after the GRE scores are received will the applicant receive the final review for admission to the relevant graduate program. In exceptional circumstances, that deadline may be extended but only to the end of the student's first quarter.

Thesis/Non-Thesis Plans

Academic units in the College of Liberal Arts differ in their thesis requirements. Some units do not require a thesis while other units have both thesis and non-thesis tracks. The thesis may be an academic thesis or combined academic/creative thesis, depending on the academic unit. Students should check with their academic unit about thesis options and guidelines for those theses, in addition to checking with the Graduate School about general thesis guidelines.

Graduate Certificate Program

The College of Liberal Arts offers a non-degree track Graduate Certificate Program designed for baccalaureate degree holders to enhance their mastery of a subject area without completing a master's program.

Students in Graduate Certificate programs complete a pre-determined set of graduate courses leading to a graduate certificate in their respective program. Students should consult the Graduate School sections of this Catalog for admission requirements and the specific academic unit offering the graduate certificate program for curriculum and plan of study.

Research in the College of Liberal Arts

Louisiana Tech University is committed to quality in teaching, research, creative activity, and public service. Research in the College of Liberal Arts promotes research and creative activity by faculty and students. The main sources of research funds are federal and state agencies, private foundations, and industry.

School of Communication

The School of Communication offers graduate degree programs at the masters and doctoral level to provide training and experience in the following majors:
- Master of Arts with a major in Speech (with concentrations in Speech Communication or Theatre)
- Master of Arts with a major in Speech Pathology
- Doctor of Audiology with a major in Audiology

Graduate students in Speech, and Speech Pathology must demonstrate acceptable proficiency in research and writing. Such proficiency must be demonstrated in Speech 500: Introduction to Research or in an approved research course. Speech courses numbered 500 and 400 level courses that are approved for graduate credit may be applied for credit toward the MA in Speech.

Professional Accreditation

The Master of Arts in Speech-Pathology, and the Doctor of Audiology programs are accredited by the Council on Academic Accreditation (CAA) of the American Speech-Language-Hearing Association (ASHA). The purpose of accreditation is three-fold:

1. to promote excellence in the preparation of graduates to enter the professions of Speech-Language Pathology and Audiology through the development and implementation of standards of educational quality;
2. to protect and inform the public by recognizing programs that meet or exceed the educational standards; and
3. to encourage graduate programs to monitor and enhance the efficacy of their educational activities by means of continuous self-study and improvement.

Accreditation is limited to those graduate educational programs that prepare persons for entry into the professions.

Test of English as a Foreign Language (TOEFL) Requirement.

Prior to consideration for admission to the Louisiana Tech University Master of Arts in Speech-Pathology program, or the Doctor of Audiology program, international student applicants for whom English is a second language must submit an original report of the Test of English as a Foreign Language (TOEFL) score to the Department of Communication Disorders. Scores should be less than two years old and must meet the following requirements to be considered for admission to either graduate program:

1. A score of 567 or higher on the paper-based version of the test (TOEFL), or
2. A score of 87 or higher on the internet-based version of the test (TOEFLiBT).
3. Formal Interview Requirement. As an additional condition for consideration of acceptance to a graduate program in the Department of Communication Disorders and prior to acceptance, an international applicant, for whom English is a second language, will be required to have a formal interview either on-site or via electronic means.

Master of Arts - Speech (MA)

General Degree Requirements

Applicants who do not have an undergraduate major in one of the areas of speech noted above are expected to satisfy any course deficiencies in the initial stages of their graduate program. The graduate student in speech must complete a minimum of 36 semester credit hours. The student will follow one of two plans of study.

Thesis/Non-Thesis Plans

The MA in Speech degree may be completed under either Plan A (Thesis) or Plan B (Non-Thesis):

Plan A (Thesis): Students must complete a minimum of 30 hours of graduate credit in Speech, or 24 hours in Speech and 6 hours in a related field, which are approved by his/her major professor and by the Head of the Department of Communication Disorders or the Director of the School of the Performing Arts. In addition, six hours of the total must be earned by successfully passing Liberal Arts 551: Research and Thesis and by completing an acceptable thesis. Twelve of the required 30 hours must be in courses offered exclusively for graduate students (500 level), not including thesis courses. A written and an oral examination on all course work and the thesis are required.

Plan B (Non-Thesis): The requirements are the same as those under Plan A, except that the student will not write a thesis and will complete a minimum of 36 hours of graduate credit. A maximum of six graduate credits may be earned in courses in fields related to Speech. Such credit must be approved by the student's advisor and the Head of the Department of Communication Disorders or the Director of the School of the Performing Arts. All graduate students in Speech-Language Pathology must demonstrate acceptable proficiency in research and reporting.

Concentration in Speech Communication. The graduate program in Speech Communication offers students advanced study and scholarly research in applied organizational communication. With a goal of professional communication competency, the program allows the student to focus on the study of information flow within an organization and the impact of communication on individuals entering, working in, and exiting organizations. The combination of communication theory and applied course work is central to the graduate education experience.

Admission Requirements. All prospective masters' graduate students must meet the general admissions requirements of the Graduate School and those who do not have an undergraduate major in Speech Communication are expected to satisfy any course deficiencies in the initial stages of their graduate program. Graduate students in the Speech Communication concentration will complete one of the two degree plans discussed above in "Master of Arts in Speech: General Degree Requirements."

Practica. All graduate students are required to complete practicum course work. Practica in speech communication are viewed as educational tools that provide meaningful professional experience related to the study of communication in organizational settings. Students are encouraged to schedule their practica in organizations and/or areas in which they would one day like to work (e.g., business and industry, higher education). The academic course work and practica are sequenced so that a student can normally fulfill the requirements for the Master of Arts in Speech Communication in two years. Speech communication course work is offered in organizational communication, research methods, communication theory, and special communication topics related to faculty and student interests. Graduates can expect to work in a wide range of professions including human resources development, corporate communication, training and development, public relations, communication consulting, education, and other related fields.

Concentration in Theatre. Information regarding the MA in Speech with a Concentration in Theatre can be obtained by contacting the Director of the School of Performing Arts.

Admission Requirements. Admission to the program includes formal application to the Louisiana Tech University Graduate School and campus audition/interview (A video audition or interview off campus can be substituted.). The graduate program in Theatre offers students advanced study and scholarly research in the Theatre Arts, The program prepares the student, through in-depth theoretical and practical training, for the rigors of the 21st Century Theatrical profession.

Course Requirements. The graduate program concentration in Theatre (administered in the School of the Performing Arts) requires that students take 36 total graduate credit hours of which 18 core credit hours will be in holistic study including all disciplines of Theatre. The final 18 hours the student may select an area of emphasis and take courses in that area or continue his/her holistic study. The student's plan of study must be approved by the Head of the Graduate Theatre program. The student must meet the requirements set forth by the Graduate School of the university in order to maintain graduate status.

Thesis/Non-Thesis Plans. Students pursuing the Master of Arts with theatre concentration will follow either Plan A or Plan B as outlined above in "Master of Arts in Speech: General Degree Requirements.

Master of Arts - Speech-Pathology (MA)

Admission Requirements

In addition to meeting the general admission requirements of the Graduate School, students seeking admission to the graduate program in Speech-Language Pathology must be recommended for admission to the graduate program by the Graduate Admissions Committee of the Department of Communication Disorders. The Committee evaluates each applicant based on grade point averages, letter of intent, and three recommendations (at least two of which must come from a faculty member who taught the applicant in a communicative disorders course if the undergraduate degree is in communicative disorders). The departmental Graduate Admissions Committee may ask applicants to schedule personal interviews. Only those students who can demonstrate strong potential for completing all degree requirements are accepted into the program. The Graduate Admissions Committee will review only those applications that are submitted by January 15th. Students are admitted to the graduate program only in the Fall Quarter of each academic year.

Admission requirements include the following specific grade point averages on undergraduate work:

1. For applicants who possess a baccalaureate degree in pre-professional speech-language pathology: overall GPA of 3.2 (on a 4.0 system), with minimum of 3.2 on speech-language pathology coursework.
2. For applicants without a baccalaureate degree in pre-professional speech-language pathology: overall GPA of 3.2 (on a 4.0 system), with minimum of 3.2 on last 30 semester hours completed.

Prior to application, students who lack a baccalaureate degree in speech-language pathology must complete 19 specified hours of undergraduate coursework in speech-language pathology. For specific course requirements, contact the Department of Communication Disorders.

Graduation

The minimum number of graduate semester hours required for the Master's degree in Speech Pathology is 36. However, additional credit hours may be required to complete clinical practicum requirements. The student with an undergraduate degree in speech-language-hearing typically requires two years of full-time study (including at least one summer) to complete all degree requirements. A student who does not hold an undergraduate degree in speech-language-hearing is expected to satisfy any course deficiencies prior to application to the graduate program to meet the academic and clinical requirements of the ASHA. All courses necessary to satisfy any deficiencies are offered in the Department of Communication Disorders. Graduate students in Speech Pathology will complete a thesis or non-thesis degree plan.

All degree candidates must register for and pass SPCH 585 (Comprehensive Examination), both written and oral parts. A maximum of two attempts is allowed. Students who fail to pass the written and/or oral section on the second attempt will be dismissed from the program.

Professional Certification

All graduate students in speech pathology are required to meet the academic and clinical experience requirements set by the ASHA for the Certificate of Clinical Competence in Speech-Language Pathology prior to completion of the master's degree. The academic course work and clinical practicum experiences are sequenced so that the student meets the academic and clinical training requirements for the ASHA Certificate of Clinical Competence (CCC) in speech pathology prior to graduation. Speech pathology course work is offered in adult and child language disorders, neurological disorders, phonology, stuttering, cleft palate, diagnostic procedures, speech science, voice disorders, and research methodology. In addition to clinical practicum experiences obtained through the Louisiana Tech Speech and Hearing Center located on campus, graduate students obtain practicum experiences in a variety of off-campus clinical sites in order to earn the clinical clock hours required for certification. Students should be aware that it is necessary that they be assigned to affiliated off-campus clinical training sites in order to earn the clinical clock hours required for certification. Each student is responsible for transportation and his/her own expenses when assigned to one of these sites.

Doctor of Audiology (AuD)

Admission Requirements

Applicants must meet all Graduate School admission requirements. The applicant process is competitive and students must meet the following additional requirements:

1. minimum overall GPA of 3.0 or a 3.2 GPA on the last 60 hours attempted.
2. three letters of recommendation from individuals qualified to assess such abilities,
3. a letter of application that describes his or her research interests and professional goals.

Applicants may be interviewed by the Graduate Admissions Committee and/or other relevant faculty of the Department of Communication Disorders. Typically, students are admitted to the program on a yearly basis only during the Fall Quarter of each year.

Applicants must have completed or be in the process of completing a baccalaureate degree from a regionally accredited institution. Previous academic preparation in communication disorders at the baccalaureate level is not a prerequisite for admission under this plan. This applicant must meet the admission requirements noted above.

Meeting the minimum admission standards of the Department of Communication Disorders, College of Liberal Arts, or the Graduate School does not guarantee admission. The departmental Admissions Committee and other relevant faculty carefully review all applicants and recommend for admission those applicants who are evaluated as being the best qualified for doctoral study in audiology.

Degree Requirements

Students admitted to the AuD program will be given a copy of the current degree requirements. All students must complete the required coursework, a dissertation or research project, and oral and written comprehensive examinations. The student will be required to complete the clinical practicum requirements necessary for professional certification and licensure which includes a clinical residency. The program is a full-time in-residence (including summers) program normally requiring four years to complete.

Program of Study for the AuD

The doctoral program in audiology is designed to meet the academic, clinical practicum, and degree requirements of the ASHA for certification and the licensure requirements of the LBESPA for entry-level practice as an audiologist. The academic and clinical components of the AuD interface in a logical manner through the training sequence. The earliest portion of the program includes intensive academic training in conjunction with the progressive development of clinical skills. During the third year of the program, students are involved in a series of intensive clinical externships and return to campus for academic course work, development of the dissertation or research project, and the comprehensive examinations. In the fourth year, students complete a full-time clinical residency in facilities/clinical sites with which the program has established clinical affiliation agreements. Also in the fourth year, students complete all degree requirements including the dissertation or research project.

A foundation of prerequisite knowledge and skills is required. Proficiency in understanding and using English sufficient to achieve effective clinical and professional interactions with clients and relevant others is expected of all doctoral students. In addition, the student must have prerequisite skills and knowledge of life sciences, physical sciences, behavioral sciences, and mathematics. Course work in these four areas may be demonstrated through transcript credit from a baccalaureate degree and is also available at Louisiana Tech University.

Students will be expected to take a minimum of nine semester credit hours of related course work that may be chosen from areas such as counseling, statistics, professional and technical writing, biomedical engineering, and educational psychology. The specific courses in the related areas must be approved by the student's Planning Committee.

The approved degree program will include a minimum of 133 semester credit hours and meet the academic and practicum requirements for the Certificate of Clinical Competence in Audiology of the American Speech-Language-Hearing Association and the licensure requirements for entry-level practice as an audiologist in the state of Louisiana. Each student's program of study will be individualized to some degree but the following core courses are required to meet minimum AuD requirements:

Required Professional Core (minimum)	64
Related Areas (minimum)	9-12
Supervised Practica (minimum)	27
Dissertation or Research Project (minimum)	12-15
Clinical Residency (minimum)	18
Total Program Hours (minimum)	133

Clinical Practicum Training

Time spent in clinical practicum experiences will occur throughout the doctoral program and will be planned to provide for the progressive development of clinical skills. Students must obtain a variety of clinical practicum experiences in different work settings and with different populations in order to demonstrate skills across the scope of practice in audiology. Acceptable clinical practicum experience can include clinical and administrative activities directly related to patient/client care. In compliance with the certification requirements of the ASHA, the aggregate total of clinical experience will equal 52 work weeks. A week of clinical practicum has been defined by the ASHA as a minimum of 35 hours per week in direct patient/client contact, consultation, record keeping, and administrative duties relevant to audiology service delivery. The supervised activities must be within the

scope of practice of audiology. The student will complete a clinical residency in the final year of the AuD program.

Doctoral Comprehensive Examination

The purpose of the doctoral comprehensive examination is to determine whether competencies in the field of audiology have been achieved through course work and clinical training experiences. All degree candidates must register for and pass SPCH 685 (Comprehensive Examination), both written and oral parts. A maximum of two attempts is allowed. Students who fail to pass the written and/or oral section on the second attempt will be dismissed from the program.

The comprehensive examination must be successfully completed at the end of the third year of study and prior to approval to begin the Clinical Residency. After satisfactory completion of the comprehensive examination in audiology, the student will be granted doctoral candidacy.

Dissertation or Research Project

Students will have the option to complete either a dissertation or research project. This is required of all students in the AuD program. It is the responsibility of the student to comply with all dissertation or research project requirements set forth by the Department of Communication Disorders, the College of Liberal Arts, and the Graduate School. Fifteen semester hours of academic credit must be earned for the dissertation, and twelve semester hours of academic work must be earned for the research project. The student must enroll for these credit hours for each academic quarter while engaged in dissertation or research project activities. If the dissertation or research project is complete prior to the quarter in which the degree is to be conferred, the student must be enrolled for a minimum of three semester hours in the quarter in which he or she expects to graduate.

Complete guidelines for the dissertation option and the research project option are available in the School of Communication's Department of Communication Disorders and the Department's website.

School of Design

Master of Architecture (MArch)

The Master of Architecture degree, coupled with the 138 credit hour Bachelor of Science in Architectural Studies, is a professional education designed for those interested in becoming a licensed architect. The program revolves around a comprehensive studio project undertaken over the duration of three quarters. New students will submit a Plan of Study for approval by the Graduate Program Coordinator within the first week of the Fall Quarter.

Facilities

Hale Hall serves as the main facility for the School of Architecture. Offices and the student gallery are located on the first floor while the upper floors hold two large open plan studios, classrooms, additional faculty offices, and facilities for digital craft production. First-year studios and drawing classes take place in the Wyly Tower of Learning. Other facilities include a 10,000 sq. ft. Art and Architecture Workshop (metalwork and woodwork shop facilities) and a 3500 sq. ft. Fabrication and Assembly Shop located on the South Campus.

Professional License and Accreditation

In the United States, most state registration boards require a degree from an accredited professional program in architecture as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a six-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards. Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Louisiana Tech University's School of Architecture offers the following NAAB-accredited degree program:

- MArch (pre-professional degree + 30 graduate credits)

Admission Requirements

Admission to the MArch program is for the Fall Quarter only and, because of the required Graduate Program committee review of each applicant, the application deadline is May 1. In addition to meeting the general admission requirements of the Graduate School, the applicant must possess a pre-professional undergraduate degree in architecture, a minimum 2.75 grade point average (4.0 scale) in all required Architecture Studios 300 level and above (or equivalent) for the pre-professional degree, a portfolio of representative design work, three letters of recommendation, and a typed personal statement. Portfolio requirements may be requested by applicants from the School of Architecture. For the School of Architecture, the GRE-general testing requirement may be waived as a criterion for admission to the Graduate School. Students seeking graduate assistantships may be required to take the GRE-general exam as a qualification to compete for an assistantship and/or out-of-state tuition fee waiver.

Pre-professional degrees not earned at Louisiana Tech University will be individually evaluated by the Graduate Program Coordinator and may be subject to "leveling" coursework as a condition to admission.

Transfer Credit

The transfer of graduate credit from another graduate institution, graduate credit by examination, graduate credit as a graduating senior, or credit earned other than as a regularly enrolled graduate student in the School of Architecture at Louisiana Tech must meet all University standards and is also subject to approval by the Graduate Program Coordinator as part of the Plan of Study. Courses taken for graduate credit while the student is registered in a non-degree graduate category will not be applied to a degree program without approval by the student's advisor and the Director of Graduate Studies. No transfer credit will be granted towards the Master of Architecture degree for grades below "**B**". A maximum of six hours may be transferred toward the Master of Architecture degree. Transfer credit is also subject to the performance criteria mandated by the National Architectural Accrediting Board. Additional information is given in the Graduate School section of the University Catalog under "Transfer Credit."

Graduation

The candidate for the Master of Architecture must complete a minimum of 30 graduate credit hours including a three-quarter sequential comprehensive design project. A Graduate Advisory Committee, appointed for each student, shall review the final project in a formal presentation and oral defense. The student must earn a minimum grade of "**B**" in each course of the sequence in order to advance to the next course in the sequence or to graduate.

Financial Support

A limited number of graduate assistantships may be available to qualified students on a competitive basis. Graduate Assistants receive a stipend for the academic year (three quarters) and a waiver of out-of-state tuition, where applicable. The deadline for assistantship applications is May 1.

Master of Fine Arts – Art (MFA)

The Master of Fine Arts degree is designed for those interested in the creative aspects of the arts. The Master of Fine Arts degree is the recognized terminal degree for the visual artist. Work toward the Master of Fine Arts degree may be undertaken in three concentrations:

- Studio
- Graphic Design
- Photography

Though distinct in character and professional goals, these programs complement and enrich one another. The programs are competitive, and interested students are encouraged to visit the campus to discuss their educational/career plans with the faculty.

Facilities

Visual Arts occupies facilities in a 40,000 sq. ft. main structure housing a 3,000 sq. ft. gallery, and a 100 seat auditorium. Other facilities include a 10,000 sq. ft. sculpture, wood shop, printmaking, and ceramic lab. Each graduate student is assigned to one of 48 private studios.

Accreditation

The Master of Fine Arts degree is accredited by the National Association of Schools of Art and Design.

Admission Requirements

Although the University accepts applications until three weeks prior to registration, this deadline, for a number of reasons, is not adequate for application to the MFA Program. The deadlines for entry into the MFA program are as follows:

- Fall Quarter Admission: February 1
- Winter Quarter Admission: September 1
- Spring Quarter Admission: December 1
- In addition to meeting the general admission requirements for the Graduate School, an applicant must submit a slide/CD portfolio that demonstrates a sufficient undergraduate art background. However, students who do not possess these backgrounds are not discouraged from applying, but in general must expect some undergraduate background work or additional graduate level work in order to pursue their graduate program effectively.

Requests to begin the MFA Program in the Summer Quarter are not allowed because adequate evaluation and administration of new graduate students are not possible during this time.

Visual Arts believes the growth of a student's knowledge of art is immeasurably enhanced through his/her association with other graduate students by sharing discussion and research on the variety of concerns in each discipline. All MFA candidates are therefore required to participate in a seminar experience during Fall and Winter Quarters. Seminars are conjoined with studio courses, and credit will be assessed based on the quality of the total work produced.

Degree Requirements

The candidate for the MFA must complete a minimum of 60 graduate credit hours. Additional course work beyond the 60-hour minimum may be required.

Those students holding only an undergraduate degree may transfer in a maximum of one-third of the required graduate hours from another institution, contingent upon graduate committee review and approval.

Those students who already have an MA degree in 2d Studio, Sculpture, Ceramics, Photography, or Communication Design may complete the 60-hour MFA by taking 24 to 36 hours (depending on the MA completed) at Louisiana Tech University. Additional hours could be required, depending on the faculty committee's review of the student's portfolio.

A graduate committee, appointed for each student, shall review the qualifications of the student and set forth the courses required for the degree. At the conclusion of graduate study, the candidate is expected to present a one-person exhibition, or similar demonstration of his/her accomplishments, which is accompanied by a written and visual record

Financial Support

A limited number of graduate assistantships are available. Graduate Assistants receive a stipend for the academic year (three quarters) and a waiver of out-of-state tuition, where applicable.

- The deadline for assistantship applications is February 1.
- The deadline for Department Assistantships is February 1.

School of History and Social Sciences

Master of Arts - History (MA)

The graduate program in history is designed to train students in the knowledge and skills necessary to the professional practice of history as preparation for further study (especially the PhD in history), for employment or advancement in fields in which such skills are desirable, and for personal cultural enrichment. Combined with a teacher certification program, the MA in History is excellent preparation for teaching social studies at the secondary level. The Department of History maintains a collaborative agreement with the University of Louisiana at Monroe and a cooperative agreement with Louisiana State University at Shreveport. Details of these agreements are available from the department office.

The Department of History offers both thesis and non-thesis programs of study leading to the MA in History.

Admission Requirements

In addition to the admissions requirements of the Graduate School, the applicant must present an acceptable GRE score and must possess the equivalent of an undergraduate minor, or 21 semester hours, in history. Applicants must also submit a one-page statement of purpose indicating objectives and areas of interest. A student wishing to pursue the MA in History will elect a major field, which will consist of at least 12 semester hours of thematically related course work chosen in consultation with the graduate advisor.

Thesis/Non-Thesis Plans

The degree of MA in History may be completed under either Plan A (Thesis) or Plan B (Non-Thesis):

Plan A (Thesis): The thesis plan is recommended for the student who anticipates continuing graduate study beyond the MA degree. It may also be appropriate to the professional or personal goals of other students. The student must complete 30 semester hours of graduate credit, 6 hours of which will be given for successful completion of a thesis, including successful completion of an oral defense before the student's thesis committee. The thesis course is Liberal Arts 551, Research and Thesis (3 semester hours credit), which may be repeated once for credit. At least 15 of the remaining 24 hours must be completed in 500-level courses open only to graduate students. The remaining courses may be taken either at the 500-level (for graduate students only) or at the 400- level (limited to courses previously approved for graduate credit).

Plan B (Non-Thesis): This plan is intended primarily for the student who does not anticipate pursuing doctoral-level work in history following completion of the MA degree. The student will not prepare a thesis, but must submit at least two substantial research papers prepared in 500-level courses for departmental approval as evidence of research and writing skills attained. The student must complete 33 hours of graduate credit in history, at least 21 of which must be completed in 500-level courses open only to graduate students.

History 501 and 505 are required of all students, both thesis and non-thesis. Every candidate for the MA in History must pass a written examination administered by at least three examiners in at least two fields of study.

All 500-level history courses and all 400-level history courses previously approved for graduate credit are acceptable for credit toward the degree MA in History.

Financial Assistance

Graduate assistantships are available to qualified students on a competitive basis. Other forms of competitive assistance include the McGinty Graduate Fellowship, the Louise B. Johnson Graduate Scholarship, and the Morgan D. Peoples Graduate Scholarship.

School of Literature and Language

Master of Arts - English (MA)

The graduate program in English is designed to be thorough, comprehensive, and culturally broad. Graduates of the program typically go on to doctoral programs in English or pursue teaching careers at the high school or junior college level. Those students choosing the technical writing concentration often enter business and government. The Department of English maintains a collaborative electronic-learning agreement with University of Louisiana at Monroe and a cooperative agreement with Louisiana State University at Shreveport to provide graduate-level video courses. Details of these agreements are available from the department office. The English Department offers a limited number of teaching assistantships awarded on a competitive basis.

Admission Requirements

An applicant must hold a bachelor's degree from an accredited institution. For unconditional admission, normally, a minimum of 24 hours must be in English. At least 12 of these hours should be at the junior or senior level. Students with a major or minor in English are especially encouraged to apply. A student interested in the MA in English with a concentration in either Literature or Technical Writing, but who does not meet the above requirements, can apply but may be required to do additional coursework. For admission to the MA in English, all applicants must submit a one-page statement of purpose indicating objectives and areas of interest. In place of the GRE as a criterion for admission, applicants are required to submit a portfolio writing sample of 15 pages of sustained writing (1 or 2 papers).

Non-Thesis/Thesis Plans

Non-Thesis Plan: A student must complete a total of 33 hours of graduate credit and pass comprehensive written and oral examinations based on a reading list in the student's approved areas of interest. At least 6 of the required 11 courses must be at the 500 level, one of which must be English 591. The remaining five courses may be taken either at the 500 level or at the 400 level (designated for Graduate credit). Departmental approval is required for a student's plan of study.

Thesis Plan: A student must complete a minimum of 33 hours of graduate credit in English, consisting of courses at the 400-level (designated for Graduate credit) and at the 500-level. Six of the 33 hours must be earned in Liberal Arts 551: Research and Thesis, and these hours must be taken in consecutive quarters. In addition to the 6 thesis hours of Liberal Arts 551, the 33 hours must include at least 4 other 500-level courses, one of which must be English 591. Finally, the student must pass a one-hour oral defense.

Graduate Certificate in Technical Writing and Communication

The Graduate Certificate in Technical Writing and Communication develops the student's writing skills for the professional and technical business environment. The program trains students in technical communication, including text formatting, documents and reports, graphics, and oral communication. In addition, students receive instruction in editing documents and engage in real-world technical writing. For admission to the Graduate Certificate in Technical Writing and Communication program, refer to the Application and Admission to the Graduate Certificate Program section in Chapter 15 of this Catalog.

Graduate Certificate Program Requirements

The certificate requires the completion of 15 semester hours of graduate course work, with at least 12 hours in graduate-level technical writing courses.

To earn a Graduate Certificate in Technical Writing and Communication from Louisiana Tech University, a student must successfully complete five 500-level English courses in technical writing; or four 500-level and one 400-level (eligible for graduate credit) English courses in technical writing; or four 500-level courses and an additional approved graduate-level course; or four 500-level courses and a three-hour capstone course or internship approved by the Coordinator of Technical Writing.

These options are designed to accommodate three different groups of students: students seeking proof of competency in technical writing and communication; graduate students seeking the certificate in technical writing and working on an approved project in engineering (counting as a capstone course or internship); and students seeking the graduate certificate along with an approved internship for credit. Any deviation from the requirements outlined above must be approved by the Coordinator of Technical Writing.

Students who complete the program successfully will receive a Graduate Certificate in Technical Writing and Communication.

PART IV – COURSE DESCRIPTIONS

Courses are numbered as follows: freshmen, 100-level; sophomores, 200-level; juniors, 300-level; seniors, 400-level; graduate students, 500- & 600-level. Certain 400-level courses may be taken by graduate students for graduate credit; in such cases, graduate students complete additional research assignments to bring the courses up to graduate level rigor. The letter **G** in parentheses, **(G)**, appears at the end of those 400-level undergraduate course descriptions which are approved for graduate level work. When taught for graduate credit, those courses are taught by Graduate Faculty. Only students admitted to the Graduate School may enroll in 500- & 600-level courses.

No credit is allowed in any curriculum for any course with a catalog number beginning with zero (0) (e.g. ENGL 099).

The numerical listing after each course title gives the following information: the first number represents lab hours per week; the second digit represents the number of 75-minute lecture periods per week; the third digit represents the semester credit hours earned for successful completion of the course. A few courses will have a fourth digit in parentheses. This means the course may be repeated for credit and the fourth digit designates the total amount of semester hour credit that may be earned including repetition of the course. Typically, these courses are research-, performance-, or project-oriented and found in the 300-, 400-levels (undergraduate student) or 500-, 600-levels (graduate student).

Some courses require the student to complete a prerequisite course or to secure special permission from faculty prior to enrolling in the course. These prerequisites are listed immediately after the numerical semester credit hour designations. Each student is responsible for complying with prerequisite course work requirements and special instructions.

NOTES:

1. Courses designated with an asterisk ***** mean this course will be accepted for General Education Requirement (GER) transfer credit. A course MAY or MAY NOT be accepted as equivalent to or substitute for a course in a specific discipline or major. Please check the Board of Regents web site at www.regents.state.la.us/ and the school you are transferring to for additional information.
2. Courses with the designation (IER) meet the Board of Regents International Education Requirement.
3. Students with a Freshman or Sophomore classification are not eligible to register for 400-level (Senior) courses without the written approval of the Academic Dean (or the Dean's designated representative) of the college responsible for that specific subject and course)
4. Course offerings for each term are made available prior to Early Registration via the BOSS website ("Available Course Sections") and in .pdf format on the Registrars website (Quarterly Schedule of Classes-The Racing Form). Quarterly offerings are subject to change to accommodate the needs of students.

LOUISIANA COMMON COURSE NUMBERING (LCCN).

Louisiana uses a statewide common course numbersing system "…to facilitate program planning and the transfer of students and course credits between and among institutions." Faculty representatives from all of the public colleges and universities worked to articulate common course content to be covered for each course included on the Board of Regents Master Course Articulation Matrix. Beginning with General Education Requirements (GER), this initiative will continue with an eye toward expansion throughout the entire Matrix.

Each course is identified by a 4-Alpha character "rubric" (i.e. prefix or department abbreviation) and a four-digit number. Each 4-Alpha rubric begins with "C" to signify that it is a state "Common" number, followed by a standard discipline abbreviation so that when they are included in campus catalogs and web sites, its meaning will be clear. For example, "CMAT" is the standardized LCCN abbreviation for Mathematics courses included in the Statewide Course Catalog. Another example would be "CENL" for English courses.

The 4-Alpha character rubric is followed by four digits, each with their own positional meaning. The first digit of the course number denoteds the academic level of the course (1 = freshman/1st year; 2 = sophomore/2nd year). The second and third digits establish course sequencing and/or distinguish the course from others of the same level, credit value, and rubric. The fourth digit denotes the credit value of the course in semester hours. For example, CMAT 1213 College Algebra (Common, Mathematics, Freshman/1st year, articulated standard sequence 21, 3 semester hours, College Algebra); CENL 1013 English Composition I (Common, English, Freshman/1st year, articulated standard sequence 01, 3 semester hours, English Composition I.

All rubric/number course identifiers correspond to course descriptiors listed in the Statewide Course Catalog, published by the Louisiana Board of Regents with direct faculty input.The Statewide Course Catalog will comprise the academic courses for which there is statewide agreement among discipline faculty representatives as to the minimum course content to be covered so that a student completing the course will be ready for the next course for which it is a prerequisite in a sequence or curriculum. Louisiana Tech University courses that are part of the Statewide Common Course Catalog can be readily identified by the [LCCN: AAAA####] at the end of the course description.

The Master Course Articulation Matrix, and the Louisiana Statewide Common Course Catalogue can be found on the Louisiana Board of Regents website (www.regents.doa.louisiana.gov under the Academic Affairs menu option.)

ACCOUNTING (ACCT)

201: Principles of Financial Accounting. 0-3-3. Basic understanding of accounting and financial reporting concepts and the significance of financial accounting information in decision-making. Master Course Articulation Matrix* [LCCN: CACC 2113]

202: Principles of Managerial Accounting. 0-3-3. Preq., ACCT 201 or 206. Basic understanding of managerial accounting concepts and the significance of accounting information for managerial decision-making. Master Course Articulation Matrix* [LCCN: CACC 2213]

303: Intermediate Accounting. 0-3-3. Preq., ACCT 202. The theory and application of accounting procedures to financial reporting.

304: Intermediate Accounting. 0-3-3. Preq., ACCT 303. The theory and application of accounting procedures to financial reporting.

305: Intermediate Accounting. 0-3-3. Preq., ACCT 304. The theory and application of accounting procedures to financial reporting.

307: Income Tax. 0-3-3. Preq., ACCT 201. A study of Federal income tax laws and state income tax laws and their effect on individual income. Master Course Articulation Matrix* [LCCN: CACC 3213]

308: Managerial Cost Accounting. 0-3-3. Preq., ACCT 202 and QA 233. A study of cost systems; accounting peculiar to manufacturing enterprises; making cost statements; and solving cost problems. Master Course Articulation Matrix* [LCCN: CACC 3113]

401: Internship in Accounting I. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

402: Internship in Accounting II. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

406: Advanced Income Tax. 0-3-3. Preq., ACCT 307. A continuation of ACCT 307 with further study into tax problems of fiduciaries, partnerships, and corporations; solutions of problems.

412: Municipal and Government Accounting. 0-3-3. Preq., ACCT 303. Accounting procedures of the Federal, municipal, and state governments. Attention is given to the preparation of budgets, financial statements, and to budgetary control.

413: Auditing. 0-3-3. Preq., ACCT 304. The study of basic auditing concerns, objectives and methodology. Master Course Articulation Matrix* [LCCN: CACC 3313]

414: Advanced Accounting. 0-3-3. Preq., ACCT 305. Study of business combinations and consolidated financial statements; partnerships; international operations; fiduciary accounting; and governmental and not-for-profit entities.

433: Accounting Systems. 0-3-3. A study of accounting systems and systems installations.

485: International Accounting. 0-3-3. Preq., ACCT 202 and senior standing (or consent of instructor). Financial, managerial, auditing taxation, and regulatory accounting issues and practices for multinational companies domiciled inside and outside the United States. **(IER)**

494: Foundations in Accounting. 0-0-3. Self-paced course in accounting sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail)

505: Accounting Analysis for Decision-Making. 0-3-3. Preq., ACCT 201 and 202, or ACCT 494. A study of accounting data and their uses with the goal of aiding management in the use of such data for decision making.

507: Contemporary Accounting Theory. 0-3-3. Preq., ACCT 305. An intensive study of recent developments, research and literature in accounting theory promulgated by the various professional accounting associations and related financial organizations.

508: Advanced Managerial Accounting. 0-3-3. Preq., ACCT 308. A study of the role of accounting in supporting the management of organizations.

509: Advanced Income Tax. 0-3-3. Preq., ACCT 307. Further study into tax problems of fiduciaries, partnerships and corporations. Credit is not given for ACCT 509 if credit is given for ACCT 406.

512: Municipal and Government Accounting. 0-3-3. Preq., ACCT 303. Accounting procedures of the Federal, municipal, and state governments. Credit is not given for ACCT 512 if credit is given for ACCT 412.

513: Advanced Auditing. 0-3-3. Preq., ACCT 413. Intensive study of professional conduct, auditing standards, auditor's liability, reports, statistical sampling, and internal auditing.

514: Advanced Accounting. 0-3-3. Preq., ACCT 305. Business combinations and consolidated financial statements; partnerships; international operations; and fiduciaries. Credit is not given for ACCT 514 if credit is given for ACCT 414.

517: EDP Accounting. 0-3-3. Preq., ACCT 413. A study of the accounting procedures and systems in a computer-intensive environment, including the proper utilization of computers in auditing the firm.

519: International Accounting. 0-3-3. Preq., ACCT 305. A study of the financial and managerial accounting issues and practices related to the globalization of business.

521: Cases and Problems in Income Taxes. 0-3-3. Preq., ACCT 307. Research cases covering various phases of income taxes; study of some source materials and research methods for ascertaining current rulings and trends in laws and regulations.

542: Seminar in Professional Development. 0-3-3. Preq., ACCT 413. Accounting judgment and decision analysis requiring the integration of knowledge from accounting and accounting related courses; cases address multifaceted accounting issues including professional, ethical, cultural, and other contemporary concerns.

550: Directed Study in Accounting. 3 hours credit. (Pass/Fail). Preq., Consent of instructor and approval of department head required. Special problem or specific area of accounting.

601: Seminar in Teaching Effectiveness and Academic Preparation. 0-3-3. Requires Doctoral standing. Course focuses on the primary concerns of accounting academics. The course provides training directed toward improving classroom teaching skills. Expectations for accounting faculty are examined in regard to teaching, research, and service. Discipline-based scholarship, contributions to practice, and pedagogical scholarship are introduced.

602: Introduction to Accounting Research. 0-3-3. Introduction to philosophy of science, basic research design, common resources available to accounting researchers, and the basic types of archival, analytical, and behavioral accounting research.

603: Advanced Seminar in Research. 0-3-3 (6). Requires Doctoral standing or special permission from instructor. May be repeated once for credit. The seminar will cover research methods and current trends in research. Critical evaluation of research is required.

604: Preparing Publishable Research. 1-3 hours. Requires Doctoral standing. Integration of literature, methods, and statistics in accounting. Students work independently with faculty to develop research papers for publication. Oral presentation of research required.

605: Managerial Accounting Research. 0-3-3. Preq., Doctoral Standing with MPA or equivalent. A study of the theories, methodologies and academic research in managerial accounting, emphasizing the identification and development of managerial accounting dissertation topics.

607: Contemporary Accounting Theory. 0-3-3. Preq., ACCT 305. Requires Doctoral standing. May require additional class meetings. An intensive study of recent developments, research and literature in accounting theory promulgated by the various professional accounting associations and related financial organizations. Credit will not be given for ACCT 607 if credit is given for ACCT 507.

608: Advanced Managerial Accounting. 0-3-3. Preq., ACCT 308. Requires Doctoral standing. May require additional class meetings. A study of the role of accounting in supporting the management of organizations. Credit will not be given for ACCT 608 if credit is given for ACCT 508.

610: Theory of Accounting Research. 0-3-3 Preq., Doctoral Standing with MPA or equivalent. Accounting research design and methodology from a theoretical perspective and identification of potential behavioral accounting dissertation topics.

613: Advanced Auditing. 0-3-3. Preq., ACCT 413. Requires Doctoral standing. May require additional class meetings. Intensive study of professional conduct, auditing standards, auditor's liability, reports, statistical sampling, and internal auditing. Credit will not be given for ACCT 613 if credit is given for ACCT 513.

615: Financial Accounting Research. 0-3-3. Preq., Doctoral Standing with MPA or equivalent. A study of capital market research, auditing research, and other financial accounting related topics and identification of financial accounting, auditing, and systems dissertation topics.

617: EDP Accounting. 0-3-3. Preq., ACCT 413. Requires Doctoral standing. May require additional class meetings. A study of the accounting procedures and systems in a computer-intensive environment, including the proper utilization of computers in auditing the firm. Credit will not be given for ACCT 617 if credit is given for ACCT 517.

619: International Accounting. 0-3-3. Preq., ACCT 305. Requires Doctoral standing. May require additional class meetings. A study of the financial and managerial accounting issues and practices related to the globalization of business. Credit will not be given for ACCT 619 if credit is given for ACCT 519.

620: Accounting Research Applications. 0-3-3. Preq., Doctoral standing with MPA or equivalent. Consideration of basic and applied accounting research with an emphasis on research design and the further development of dissertation topics.

621: Cases and Problems in Income Taxes. 0-3-3. Preq., ACCT 307. Requires Doctoral standing. May require additional class meetings. Research cases covering various phases of income taxes; study of some source materials and research methods for ascertaining current rulings and trends in laws and regulations. Credit will not be given for ACCT 621 if credit is given for ACCT 521.

642: Seminar in Professional Development. 0-3-3. Preq., ACCT 413. Requires Doctoral standing. Accounting judgment and decision analysis requiring the integration of knowledge from accounting and accounting related courses; cases address multifaceted accounting issues including professional, ethical, cultural, and other contemporary concerns. Credit will not be given for ACCT 642 if credit is given for ACCT 542.

650: Directed Study in Accounting. 3 hours credit. (Pass/Fail). Preq., Consent of instructor and approval of department head required. Special problem or specific area of accounting.

685: Comprehensive Exam in Accounting. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in accounting. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in accounting. Requires consent of graduate director.

AGRICULTURAL BUSINESS (AGBU)

220: Principles of Agricultural Economics. 0-3-3. Economic theory with application to production, marketing, and financing in agribusiness. Institutions such as cooperatives, farm credit systems, foreign agricultural trade, and government will be emphasized.

225: Special Problems in Agricultural Business. 1-3 hours credit (4). Preq., Consent of Instructor. May be repeated for credit. Assignments in areas of agricultural economics, rural development, natural resources, and agribusiness management.

230: Principles and Practices of Agricultural Marketing. 0-3-3. Methods and channels of agricultural marketing; marketing principles; governmental action concerned with the marketing process; analysis and evaluation of marketing problems.

310: Agricultural Policy. 0-3-3. The impact of agricultural policy on the farm firm and agribusiness industry. Emphasis is placed on policy issues affecting producers and consumers of agricultural products.

402: Farm and Agribusiness Management. 0-3-3. Preq., AGBU 220 or ECON 202. Economic principles, budgeting, organization, and management techniques as applied to a farm, ranch or agricultural business. **(G)**

425: Special Problems in Agricultural Business. 1-3 hours credit (4). Preq., Consent of Instructor. May be repeated for credit. Assignments in areas of agricultural economics, rural development, natural resources, and agribusiness management.

450: Natural Resource Economics. 0-3-3. Tools for economic decision-making applied to the use and allocation of natural resources associated with agriculture. Costs and benefits of various approaches to natural resource management.

460: Agricultural Finance. 0-3-3. Analysis of financial investments in the agricultural firm, credit sources, debt repayment, capital allocation, and the use of short, intermediate, and long-term credit. **(G)**

AGRICULTURAL EDUCATION (AGED)

450: Advanced Agricultural Shop Methods and Safety. 3-2-3. Preq., AGSC 209 and 211. Methods and techniques for instruction in agricultural shop safety and power tool use in the high school agricultural shop laboratory.

460: Fundamentals of Agricultural Education. 0-3-3. History, traditions, and guidelines of agricultural education. Consideration of federal, state, and local laws and regulations concerning agricultural education and Louisiana's public high schools.

AGRICULTURAL SCIENCE (AGSC)

201: Microcomputer Applications. 0-3-3. Introduction to microcomputers with specific applications in filing conventions, word processing, spreadsheets, electronic communications, and other topics.

209: Small Engines. 3-0-1. Principles of operation, construction, application, maintenance, and overhaul procedures of small internal combustion engines.

211: General Shop. 6-0-2. Care and use of tools, gas and electric welding, cold metal work, and woodwork.

301: Ethics in Agriculture and Natural Resources. 0-1-1. Examination and discussion of ethical issues related to agriculture and natural resources.

320: Statistical Methods. 0-3-3. Preq., sophomore standing or above. Introduction to descriptive and inferential statistics, probability, sampling distributions, confidence intervals, hypothesis testing, ANOVA, correlation and regression, with an emphasis on biological data and applications.

411: Seminar. 0-1-1. Preq., enrollment limited to students with senior standing. Reviews, reports, and discussion of current problems in agriculture and related fields.

478: Cooperative Education Work Experience. 1-9 hours credit. May be repeated for credit. On-site supervised, structured work experiences. Application and supervision fee required. Cannot be taken for credit if student has credit for ENSC 478.

516: Contemporary Topics. 1-6 hours credit (6). Examination and discussion of a variety of timely topics pertaining to the agricultural sciences. May be repeated with a change in subject matter.

AIR FORCE AEROSPACE STUDIES (AFAS)

125: Introduction to the U. S. Air Force. (GMC). 0-1-1. Discussion of the Air Force today. Includes topics such as professionalism, communications, and the Air Force installation. Must be taken concurrently with AFAS 155.

126: U.S. Air Force Organization (GMC). 0-1-1. Analysis of the organization of the U.S. Air Force with discussion of the various major Air Force commands. Must be taken concurrently with AFAS 156.

127: The U.S. Air Force Doctrine (GMC). 0-1-1. Completes the analysis of Air Force organization. Examines Air Force doctrine and relationships with other U.S. military forces. Must be taken concurrently with AFAS 157.

155: AFROTC Leadership Laboratory. 2-0-0. Orientation and instruction in Air Force dress and grooming standards and application of Air Force discipline, customs and courtesies. Study of the Armed Forces and AFROTC grade structure, insignia, and chain of command. Introduction to military drill. (Pass/Fail)

156: AFROTC Leadership Laboratory. 2-0-0. Continuation in military customs and courtesies and military drill. Familiarization with Air Force services and activities. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

157: AFROTC Leadership Laboratory. 2-0-0. Structure and functions within the cadet corps, wing and base organizations. Additional instruction in military customs, courtesies and drill. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

225: The Development of Air Power I (GMC). 0-1-1. The beginnings of manned flight from balloons and dirigibles, to the Wright Brothers, World War I and the interwar years. Must be taken concurrently with AFAS 255.

226: The Development of Air Power II (GMC). 0-1-1. Continuation of 225. A study of air power during World War II, the Berlin Airlift and Korea. Must be taken concurrently with AFAS 256.

227: The Development of Air Power III (GMC). 0-1-1. Continuation of 226. A study of U.S. air power in the international arena from 1955 to the present. Must be taken concurrently with AFAS 257.

255: AFROTC Leadership Laboratory. 2-0-0. Understanding the Air Force base environment. Application of Air Force standards, discipline, conduct, customs, and courtesies. Advanced drill positions and movements. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

256: AFROTC Leadership Laboratory. 2-0-0. Understanding selected career areas available based on individual qualifications. Advanced drill movements to include review and ceremony procedures. Discussion of privileges and responsibilities associated with an Air Force commission. Physical fitness training. (Pass/Fail)

257: AFROTC Leadership Laboratory. 2-0-0. Advanced drill movements to include orientation in commanding a flight, command voice, and use of guidon. Preparation for summer field training. Application of physical fitness regimen to meet weight and fitness standards and conditioning for field training environment. (Pass/Fail)

331: Communications for the Air Force (POC). 0-2-2. Functions and formats of Air Force communications. Emphasis on written and oral communications used by junior officers. Must be taken concurrently with AFAS 351.

332: Air Force Leadership (POC). 0-2-2. Analysis of leadership styles and the traits of a leader. Group dynamics. Must be taken concurrently with AFAS 352.

333: Military Management (POC). 0-2-2. Study of management principles with emphasis on the view of an Air Force junior officer. Must be taken concurrently with AFAS 353.

351: AFROTC Leadership Laboratory. 2-0-0. Attain leadership and management competence through participation in advanced leadership experiences. General structure and progression patterns common to selected officer career fields. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

352: AFROTC Leadership Laboratory. 2-0-0. Continuation of advanced leadership experiences to attain leadership and management competence. Application of procedures for evaluating cadets. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

353: AFROTC Leadership Laboratory. 2-0-0. Continuation of advanced leadership experiences to attain leadership and management competence. Comprehension of special summer training programs available to cadets. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

431: National Security Policy and Professionalism. (POC). 0-2-2. Examination of the national security policy process and all of the key participants. Military professionalism and officership will also be examined as to their impact on patterns of civil-military relations. Must be taken concurrently with AFAS 451.

432: Defense Strategy, Policy and Military Law (POC). 0-2-2. Examination of the methods of managing conflict to include arms control and the threat of war. The military justice system and professionalism will be covered as topics of special interest. Must be taken concurrently with AFAS 452.

433: Regional Studies and Preparation for Active Duty. (POC). 0-2-2. Examination of sensitive areas of the world and their impact on American National Security and what the new officer may expect on his/her initial assignment. Must be taken concurrently with AFAS 453.

451: AFROTC Leadership Laboratory. 2-0-0. Application of effective leadership and management techniques with individuals and groups. Comprehension of special education programs available to senior cadets. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

452: AFROTC Leadership Laboratory. 2-0-0. Continuation of the application of effective leadership and management techniques with individuals and groups. Comprehension of Communications and Operations Security programs. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

453: AFROTC Leadership Laboratory. 2-0-0. Continuation of effective leadership and management techniques with individuals and groups. Comprehension of active duty service commitments incurred throughout an officer's career. Understanding factors which facilitate a smooth transition from civilian to military life. Application of physical fitness regimen to meet weight and fitness standards. (Pass/Fail)

ANIMAL SCIENCE (ANSC)

111: Introduction to Animal Science. 0-3-3. Introduction to the field of Animal Science with emphasis on breeds, terminology and basic husbandry practices of dairy and beef cattle, horses, swine, sheep and poultry.

113: Introduction to Animal Science Laboratory. 3-0-1. Practical application and study of the different areas of animal science.

201: Introduction to Poultry Science. 3-2-3. The principles and practices of breeding, incubation, nutrition, disease control, management practices and marketing of poultry.

204: Meat Animal and Carcass Evaluation. 0-3-3. Selection and evaluation of major livestock species based on performance, production records, and visual appraisal. Presentation of oral and written reasons will be required.

211: Introduction to Equine Science. 0-3-3. A general survey of principles of horse management and husbandry, to include anatomy, unsoundness, nutrition, health and reproduction.

220: Introduction to Horsemanship. 3-2-3. Introduction to methods and techniques for controlling and influencing the performance of horses.

222: Horse Behavior/Training I. 3-2-3. Horse behavior and psychology as it relates to breaking and handling horses. To include: fitness and conditioning, equipment, grooming, and show preparation.

223: Horse Behavior/Training II. 6-0-2 (6). Preq., ANSC 222. Experience based learning and application of horse behavior and psychology in training. This class may be taken up to 3 times for credit.

225: Special Problems in Animal Science. 1-3 hours credit. Preq., consent of instructor. May be repeated for credit. Topics may include foal management, fitting and showing of livestock, or topic selected with consent of instructor.

301: Principles of Animal Nutrition. 0-3-3. Preq., ANSC 111 and CHEM 100 or 130. The source, chemical composition, and nutritive value of farm animal feedstuffs.

309: Anatomy and Physiology of Animals. 3-2-3. Preq., BISC 130. The structures and functions of the tissues and organs of animals.

312: Animal Endocrinology. 0-2-2. Development, structure, and functional processes of the endocrine system in animals.

315: Meats. 6-1-3. Methods and practices involved in the processing and preservation of meats.

318: Physiology of Reproduction. 0-2-2. Preq., ANSC 111. Physiology of reproduction of domestic farm animals. Embryology and anatomy of reproductive systems; gametogenesis, fertilization, gestation and parturition.

340: Horse Evaluation. 3-2-3. Detailed evaluation of the horse. To include: conformation, body condition, as well as breed and discipline characteristics.

401: Animal Breeding. 0-2-2. Principles and application of animal breeding, including gene frequencies, heritabilities, inbreeding coefficients, selection and mating systems. **(G)**

405: Applied Animal Nutrition. 3-2-3. Preq., ANSC 301. A review of applied nutritional practices and management, and ration formulation for beef and dairy cattle, horses, swine and poultry. **(G)**

409: Animal Pathology. 3-2-3. Preq., BISC 214 or 260 and ANSC 307 or 309. The etiology, symptoms, prevention, control and eradication of the major diseases of farm animals. **(G)**

410: Beef Production. 3-2-3. Preq., ANSC 301 or 405. Principles and practices in breeding, feeding, marketing and management of beef cattle. **(G)**

411: Horse Production. 3-2-3. Preq., ANSC 111 or 211, and 318. Principles and practice in breeding, feeding, and management of horses.

425: Special Problems in Animal Science. 1-3 hours credit. May be repeated for credit. Preq., Written consent of instructor. Foal management and sale preparation; steer fitting and showing; or topic selected with consent of adviser.

440: Equine Farm Management. 3-2-3. Study of unique aspects of procuring and operating different categories of horse units. To include: facilities, management, insurance, and equine law.

470: Veterinary Techniques. 4-2-3. Preq., ANSC 309, 409, or special permission. Applications of veterinary diagnostic, therapeutic, and prophylactic techniques used in control of animal diseases. **(G)**

APPLIED & NATURAL SCIENCES (ANS)

189: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

194: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

289: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

294: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

389: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

394: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

489: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

494: Special Topics: 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

589: Special Topics: 1-4 hours credit. Preq., Graduate standing. Selected topics in an identified area of study in the College of Applied and Natural Sciences.

594: Special Topics: 1-4 hours credit. Preq., Graduate standing. Selected topics in an identified area of study in the College of Applied and Natural Sciences.

ARCHITECTURE (ARCH)

112: Communication Skills I. 6-0-2. An introduction to the principles and techniques of visualization and freehand representation drawing.

115: Foundation Design I. 9-0-3. Coreq., ARCH 112. Introduction to two-dimensional design issues and related compositional, analytical, and representational strategies emphasizing development of a design vocabulary and methods of design investigation.

122: Communication Skills II. 6-0-2. Preq., ARCH 112. Introduction to the principles and techniques of mechanical drawing as a means of documentation and investigation emphasizing geometric principles, planar geometry and architectural representation.

125: Foundation Design II. 9-0-3. Preq., ARCH 112 and ARCH 115. Coreq., ARCH 122. Introduction to three-dimensional design and related compositional, material, analytical and representational strategies emphasizing the expansion fo a design vocabulary and methods of design investigation.

134: Introduction to Architecture. 0-2-2. An introduction to architecture with emphasis on its basic vocabulary, grammar, historical developments, and cultural determinants.

135: Foundation Design III. 9-0-3. Preq., ARCH 122 and ARCH 125. Examination of theories and methods of design investigation emphasizing analysis and application of precedent, tectonics and spatial experience.

211: Architectural History I. 0-2-2. An examination of the classical language of architecture with specific reference to the contributions of the social, cultural, intellectual, technological contexts to its development.

215: Core Design I. 12-0-4. Preq., ARCH 131 and ARCH 135. Examination of modes of architectural investigation and production emphasizing schematic design principles as related to spatial experience, building envelope, site principles and digital imagery.

222: Architectural History II. 0-2-2. An examination of the modern language of architecture with specific reference to the social, cultural, intellectual, and technological contexts to its developments.

225: Core Design II. 12-0-4. Preq., ARCH 215. Examination of modes of architectural investigation and production emphasizing schematic design development as related to formal and structural systems, localized site conditions and digital methods.

233: Contemporary Architectural History. 0-2-2. Examination of the various movements emerging since mid-twentieth century with reference to the social, cultural, intellectual and technological contexts that fostered their development.

235: Core Design III. 12-0-4. Preq., ARCH 225. Examination of modes of architectural investigation and production emphasizing design development principles as related to building components and systems, environmental issues and digital technologies.

315: Core Design IV. 12-0-4. Preq., ARCH 235. Examination of architecture and its physical context through an analytical approach to site issues, architectural precedents, building codes, programming, and structural and architectural systems.

321: Architectural History Seminar. 0-2-2 (6). Preq., ARCH 233. Examination and investigation of selected topics associated with architectural history and theory. May be repeated for a total of six semester hours credit with change of topic.

325: Core Design V. 12-0-4. Preq., ARCH 315. Examination of design processes emphasizing appropriate selection of construction materials, structural systems, and building envelopes through an integrated approach to aesthetic and environmental issues.

334: Theories of Architecture. 0-2-2. Preq., ARCH 222. An evaluation of theoretical and philosophical developments relative to the architecture profession, its critical domain and cultural relevance.

335: Core Design VI. 12-0-4. Preq., ARCH 325. Examination of issues relative to site, codes, technical documentation, financial consideration, building systems, and schematic design development through a collaborative and community-based design-build project.

341: Structural Systems I. 0-3-3. Preq., PHYS 210 and MATH 112. A survey of statics, strength of materials and the fundamental principles of structural behavior in architecture.

343: Structural Systems II. 0-3-3. Preq., ARCH 341. A continuation of ARCH 341 with consideration to the effects of forces in the design of contemporary structural systems and elements in wood, steel and reinforced concrete.

350: Visual Studies. 9-0-3-(6). Studies of the art and craft of building through the design and fabrication of architectonic objects.

351: Building Systems I. 0-3-3. Preq., MATH 112 and ARCH 235. Introduction to various structural systems and their application in buildings, and the issues impacting foundation, floor framing and roof framing layouts through technical documentation.

352: Building Systems II. 0-3-3. Preq., MATH 112 and ARCH 235. Study of environmental systems impacting buildings emphasizing passive energy techniques, natural lighting, electrical lighting and acoustics.

353: Building Systems III. 0-3-3. Preq., MATH 112 and ARCH 235. Study of service systems impacting buildings emphasizing electrical, mechanical, plumbing, fire suppression and security systems.

380: Applied Studio Practices. 6-0-2 (4). Practical problems in graphic and visual communications.

391: Architecture of Louisiana. 0-3-3. A survey of the architecture of Louisiana from the colonial period to the present.

400: Studio Problems. 6-0-2 (4). Specialized studio problems in aqueous media on paper.

402: Field Travel. 0-1-1 (3). The examination and analysis of contemporary architectural works and urban environments through participation in supervised travel. **(G)**

403: Project Documentation. 9-0-3 (6). Preq., ARCH 474. The full documentation of a project of historic or architectural significance in Historic American Buildings Survey format. **(G)**

411: Planning and Urban Design Theory. 0-2-2. An examination of the process of design and change in urban environments, with discussion of strategies and processes for intervening in the development of these environments.

414: Professional Practice. 0-3-3. An examination of the architect's role and responsibilities in the legal, financial, client, and project management issues of architectural practice and project delivery.

415: Core Design VII. 12-0-4. Preq., ARCH 335. Examination of urban issues through considerations of site, program, culture, socio-economic factors in urban development and the design of public and civic space.

417: Internship in Architecture. 20-0-4 (8). Preq., Senior Standing. Supervised experience in the office of a registered architect, interior designer, engineer or landscape architect. A minimum of 20 hours per week. (Pass/Fail).

425: Core Design VIII. 12-0-4. Preq., ARCH 415. Examination of site issues, building codes/systems, and schematic design development relative to projects that reduce environmental impact and provide energy and bioclimatic efficiency.

434: Contemporary Theory & Criticism. 0-2-2. Preq., ARCH 233 and ARCH 334. An examination of architectural theory since 1968 with an emphasis on the changing role of theory with respect to architectural practice.

435: Core Design IX. 12-0-4. Preq., ARCH 425. Examination of design issues relative to programming, structural and architectural systems, building materials, historical traditions, and detailed design development through an architectural competition.

445: Community Design Activism Center. A(0-1-1); B(0-2-2); C(0-3-3) (9). Participation in community-based, public interest design project. May be repeated for a total of nine semester hours credit..

450: Related Readings. A(4 ½-0-1); B(9 ½-0-2); C(13 ¾-0-3) (9). Guided readings in a specific aspect of architectural theory or practice under the supervision of a faculty member. Credit and topic by agreement with the Department Head.

453: Building Systems IV. 0-3-3. Preq., MATH 112 and ARCH 235. Examination of the components of the building envelope through technical documentation and the study of building materials and methods.

473: Design Research. 0-2-2. A study of research method for the architect including the execution of scholarly research and programming as related to the degree design project.

480: Degree Design Project I. 12-0-4. Preq., ARCH 473. Initiation of the degree design project through multiple schematic design iterations that reconcile and resolve contextual, formal, functional, and ideological issues.

490: Degree Design Project II. 12-0-4. Preq., ARCH 480. A continuation of ARCH 480 emphasizing the detailed design development of the previously resolved schematic design.

491: Professional Practice III. 0-2-2. Preq., ARCH 481. The legal, ethical and moral issues of architectural practice as related to the changing professional context.

502: Field Travel. 0-1-1 (2). Preq., graduate standing. Examination and analysis of precedent through participation in field travel.

504: Pre-Design Research. 0-3-3. Preq., graduate standing. Research and study of theoretical and programmatic issues related to the preparation of the comprehensive project.

510: Comprehensive Design I. 15-0-5. Preq., ARCH 504. Initiation of a comprehensive project with emphasis on applied research, precedent analyses, organizational strategies, and holistic design thinking.

511: Selected Topics in Professional Practice. 0-2-2 (4). Preq., graduate standing. Selected topics related to professional practice in architecture. May be repeated once for credit with change of topic.

514: Professional Practice Seminar. 0-3-3. Preq., graduate standing. An examination of the legal, ethical, community, and leadership issues of architectural practice in relation to changing professional and social contexts.

520: Comprehensive Design II. 15-0-5. Preq., ARCH 510. Continuation of a comprehensive project through schematic design with emphasis on development and integration of building systems and contexts into a unified building.

521: Selected Topics in Materials and Methods. 0-2-2 (4). Preq., graduate standing. Selected topics related to materials and methods in architecture. May be repeated once for credit with change of topic.

530: Comprehensive Design III. 15-0-5. Preq., ARCH 520. Conclusion of a comprehensive project through design development; with emphasis on spatial, technical, and graphic resolution as realized through a comprehensive architectural presentation.

531: Selected Topics in History and Theory. 0-2-2 (4). Preq., graduate standing. Selected topics related to history and theory of architecture. May be repeated once for credit with change of topic.

534: Advanced Topics in Architectural Theory. 0-3-3. Preq., ARCH 434. Selected topics related to advanced theoretical issues in contemporary architectural culture.

545: Community Design Activism Center. A(0-1-1); B(0-2-2); C(0-3-3) (9). Preq., graduate standing and permission of instructor. Participation in a community based, public interest design project. May be repeated for a total of nine semester hours credit.

550: Related Readings. A(4 ½-0-1); B(9 ½-0-2); C(13 ¾-0-3) (9). Preq., graduate standing and permission of instructor. Guided readings in a specific aspect of architectural theory or practice under the supervision of a faculty member. Credit and topic by agreement with the Department Head. May be repeated for up to nine semester hours of credit total with change of topic.

559: Specialized Individual Studio Problems. 6-1-3-(9). Permission and project approval must be obtained from Department Head.

ART (ART)

115: Design. 6-1-3. Formal problems of the theory and practice in the elements and principles of design. Master Course Articulation Matrix* [LCCN: CART 1113]

116: Color Design. 6-1-3. Preq., ART 115 or ARCH 110. The study of color and the interaction of color in design. Master Course Articulation Matrix* [LCCN: CART 2303]

118: 3-D Design. 6-1-3. Preq., ART 115. Problems in three-dimensional design and increased emphasis on the development of individual ideas through various materials such as clay, plaster, fiberglass, wood, and plastics. Master Course Articulation Matrix* [LCCN: CART 1123]

119. Introduction to Graphic Design Software. 6-1-3. Preq., ART 115 and 116; Graphic Design Majors Only; a specific laptop computer is required for the course. Survey of the fundamentals of using Graphic Design software through design assignments.

125: Drawing. 6-1-3. A study of the principles underlying all creative and representation drawing. Master Course Articulation Matrix* [LCCN: CART 2203]

126: Drawing. 6-1-3. Preq., ART 125. A continuation of ART 125.

130: Introduction to Materials. 6-1-3. Preq., ART 116 and 126. Studio majors only. Centered on a series of exercises that will develop problem solving, increase self discipline, and further understanding of materials, composition, and design.

160: Introduction to Graphic Design. 6-1-3. Preq., ART 116 and 126. An introduction to the methods, processes, and principles of Graphic Design. Portfolio review required for completion.

171: Introduction to Digital Photography. 6-1-3. An introduction to photography using digital cameras, image software and digital printers. Student supplies his/her own DSLR camera, laptop and required software.

172: Intermediate Digital Photography. 6-1-3. Preq., ART 171. Intermediate photography using digital cameras, image software and digital printers. Student supplies his/her own DSLR camera, laptop and required software.

202: Woodshop Orientation. 3-0-1. A familiarization course for students, preparatory to their use of the woodshop. The course will be a hands-on introduction to all the equipment available for student use.

220: Painting. 6-1-3. Preq., ART 116 and 126. Creative approach to the problems in painting with emphasis on observation and representation.

221: Painting. 6-1-3. Preq., ART 220, and ART 225, 228, or 229. Creative approach to the problems in painting with emphasis on the human figure.

225-228-229: Figure Drawing. 6-1-3 each. Preq., ART 125 and 126. Drawing in media from models. Master Course Articulation Matrix* [LCCN: CART 2213]

240: Ceramics. 6-1-3. An introduction to ceramic processes and techniques with an emphasis on the creative aspects of the material.

241: Ceramics. 6-1-3. Emphasis on the use of the potter's wheel.

250: Sculpture Processes. 6-1-3. An introduction to sculptural methods, processes, and principles through an exploration of basic tools and techniques.

260: Graphic Design I. 6-1-3. Preq., ART 160. Design methodology and process, including problem definition, ideation, composition, and presentation. Culminates in a portfolio review, which is a pass/fail entry requirement to the major.

261: Typography. 6-1-3. Preq., ART 260. Introduction to the fundamental nomenclature, anatomy, and usage of typography in a Graphic Design context.

262: Graphic Design II. 6-1-3. Preq., ART 261. Graphic Design formats and information design hierarchies developed in a problem-solving context. Includes advanced typography, document design and creation, and research issues.

263: Graphic Design Imaging. 6-1-3. Preq., ART 260. Creation of imagery for Graphic Design, including research into digital and manual media applications in a problem-solving context.

264: History of Graphic Design. 0-3-3. Preq., ART 260. Non-linear investigations into contemporary design issues and trends as they relate to historical precursors and influences.

266: History of Art I. 0-3-3. A survey of the painting, sculpture, architecture, and minor arts of ancient and medieval societies. Master Course Articulation Matrix* [LCCN: CART 2103]

267: History of Art II. 0-3-3. Preq., ART 266. A survey of the painting, sculpture, architecture, and minor arts from the Renaissance to the present. Master Course Articulation Matrix* [LCCN: CART 2113]

271: Alternative Photographic Processes. 6-1-3. Preq., ART 270. Creative approaches to various non-traditional photographic processes utilizing both analogue and digital methods.

272: Concepts of Photographic Imagery. 6-1-3. Preq., ART 171. An overview of approaches to contemporary photography using various format cameras.

274: Introduction to Digital Manipulation. 6-1-3. Preq., ART 116 & 126. Studio Majors Only. Introduction to computer design applications and fabrication tools, focusing on industry trends in digital output as related to the interdisciplinary nature of contemporary art.

290: Art Appreciation. 0-3-3. Study and enjoyment of art in its various expressions. Principles for critical judgment. Non-Art majors only. Master Course Articulation Matrix* [LCCN: CART 1023] or [LCCN: CART 1013]

318: Conceptual Art and Theory. 6-1-3. Preq., ART 116 and 126. Contemporary art theory and practice; explores the socio-political, cultural, and historical contexts of art. Research and study into contemporary issues as applied to themed projects.

320: Painting. 6-1-3. Preq., ART 221. Creative approach to the problems in painting with emphasis on experimentation in various media, subjects, and techniques.

321: Painting. 6-1-3. Continuation of ART 320.

331: Introduction to Intaglio. 6-1-3. Preq., ART 116 and 126. A basic survey of intaglio techniques in etching, drypoint, aquatint, lift ground, and soft ground.

332: Introduction to Lithography. 6-1-3. Preq., ART 116 and 126. A basic survey of traditional lithography using litho crayons, tusche washes, producing flats, and transfer techniques. Investigate printing methods using Bavarian limestone.

333: Introduction to Digital Printmaking. 6-1-3. Preq., ART 116, 126, and 119 or 274. Introduction to the basic functions of computer software for image manipulation as the foundation for original hand pulled prints.

346: Ceramics. 6-1-3. Preq., ART 240 or 241. An advanced course in ceramic design and construction with an introduction to the use of ceramic kilns.

347: Ceramics. 6-1-3. Preq., ART 240 or 241. A continuation of ART 346.

357: Screen Printing. 6-1-3 (9). Preq., ART 262 or permission of instructor. Introduction to techniques of screen printing to create projects for the graphic designer's portfolio. Processes and projects will explore a range of techniques and materials.

360: Print Production. 6-1-3. Preq., ART 262. Preparing design projects for final production processes, including a survey of printing processes. Investigations into Graphic Design industry terminologies and production practices.

361: Identity Systems Design. 6-1-3. Preq., ART 262 and 264. Design projects for the portfolio. Includes experiences in problem-solving within a creative team. Investigations into corporate identity systems, branding, and analytical research.

362: Designing for the Web I. 6-1-3. Preq., ART 260, 261, 262 or permission of instructor. Basic concepts, nomenclature, software, and processes used in the design and creation of websites. Includes introduction to HTML and optimization issues.

363: Advertising Campaign. 6-1-3. Preq., ART 262 and 264. Advanced studio projects exploring advertising design and utilizing contemporary advertising media formats.

365: Designing for the Web II. 6-1-3. Preq., ART 360, and 362, and permission of instructor. Advanced exercises and problem solving in creating information architecture, motion graphics, user navigation and graphic layouts.

371: Advanced Problems in Photography. 6-1-3 (9). Preq., ART 116 and ART 126. Advanced photography projects requiring alternative methods of presentation.

372: Introduction to Photographic Lighting. 6-1-3. Preq., ART 271. An introduction to understanding the qualities of light and how to produce a desired effect using both artificial and natural light.

373: Professional Photography and Lighting. 6-1-3. Preq., ART 372. An introduction to professional photography techniques and practices simulating photographer/client relationships, deadlines and creativity under pressure.

378: History of Photography. 0-3-3. Preq., ART 266 and 267. A survey of the photographic image from 1839 to the present with special emphasis on the development of photographic seeing.

390: Sculpture. 6-1-3-(9). Preq., ART 250. Investigations in sculptural processes, materials, and techniques.

391: Sculpture. 6-1-3 (9). Preq., ART 250. Creative approach to problems in metal casting, fabrication, welding, mold technology, and foundry procedures.

402: Senior Studio Portfolio. 6-1-3. Preq., ART 318. Initiation of a cohesive body of art works in preparation for the senior exhibition.

403: Senior Exhibition. 6-1-3 (6). Preq., ART 402, Senior Standing and Studio Majors Only. Student must present an exhibition for exiting the program. Artist statement, resume, and digital samples for school archives are required.

413: Design Theory and Practice. 6-1-3. Preq., ART 264, 360, 361 and 363. Investigations into Graphic Design theory resulting in student research and presentations. **(G)**

415: Directed Studies. 6-1-3 (9). Preq., Permission of Instructor. Directed research projects. **(G)**

420: Studio Problems. 6-1-3-(9). Preq., ART 320. Advanced problems in painting. **(G)**

427: Advanced Drawing. 6-1-3-(9). Preq., ART 127 and ART 225 or 228 or 229. Interpretive approach to drawing. **(G)**

430: Studio Problems. 6-1-3-(9). Preq., ART 331. Advanced problems in printmaking. **(G)**

440: Studio Problems. 6-1-3 (9). Preq., ART 346 or 347. An elective course in advanced crafts. **(G)**

450: Senior Photography Portfolio. 6-1-3. Preq., ART 374. Initiation of a cohesive body of fine art photographs in preparation for the senior photography exhibition.

459: Women and the Arts. 0-3-3. Preq., ART 267. Survey of women's involvement with the visual arts. Major emphasis upon anonymous "female" crafts and leading women artists, 1600 to present. **(G)**

460: Monuments of Non-Western Art. 0-3-3. Survey of monuments of architecture, sculpture, painting, etc. from selected Asian, African, Pre-Columbian, and Oceanic cultures. **(G)**

461: American Art, 1929-1990. 0-3-3. Preq., ART 267. Survey of major monuments, artists, styles, and changes in modern American art. **(G)**

463: Senior Portfolio I. 6-1-3. Preq., ART 361 and 365. Advanced projects for the professional Graphic Design portfolio.

464: Advanced Communication Media. 6-1-3 (9). Preq., ART 362 and 365 or permission of instructor. Advanced digital media projects requiring creative problem solving. **(G)**

465: American Art in the Age of Expansion, 1865-1893. 0-3-3. Preq., ART 267. A survey of leading artists, styles, movements and changing attitudes about art. It stresses socioeconomic aspects of art making and patronage. **(G)**

466: History of Modern Art. 0-3-3. Preq., ART 267. Historical and critical appraisal of art in the 19th and 20th centuries. **(G)**

468: History of American Art. 0-3-3. Preq., ART 267. Historical and critical appraisal of art in America from the colonial era to the present. **(G)**

469: History of Italian Art. 0-3-3. Preq., ART 267. A survey and analysis of the painting, sculpture, and architecture produced in Italy between 1260 and 1600. **(G)**

471: Investigations in Graphic Design. 6-1-3 (9). Preq., ART 262 and Permission of Instructor. Advanced research projects in Graphic Design while working within a design team. **(G)**

475: Senior Portfolio II. 6-1-3. Preq., ART 463 and Permission of Instructor. Preparation of the professional designer's portfolio and resume. Formats and techniques for presentations; course culminates in a graded portfolio review. Digital samples for school archives are required.

490: Sculpture. 6-1-3-(9). Preq., ART 390 or 391. Creative approach to the problems in sculpture with individually directed experiments in the various sculptural processes. **(G)**

499: Issues in the Arts. 0-3-3. A seminar for undergraduate senior and graduate students in the arts. This course will cover verbal and written interchange of ideas and issues in the arts. Seniors and graduate students only. **(G)**

510: Graduate Design. 6-1-3-(6). Studio work varying with the student's project.

511: Graduate Design. 6-1-3-(6). Studio work varying with the student's project.

512: Graduate Design. 6-1-3-(6). Studio work varying with the student's project.

513: Master's Project. 6-1-3-(6). Original, independent studio work approved by the Art Graduate Committee as appropriate for presentation as a solo exhibition of final project.

514: Master's Project. 6-1-3-(6). Original, independent studio work approved by the Art Graduate Committee as appropriate for presentation as a solo exhibition of final project.

515: Master's Project. 6-1-3-(6). Original, independent studio work approved by the Art Graduate Committee as appropriate for presentation as a solo exhibition of final project.

520: Advanced Studio Problems. 6-1-3-(6). Individual projects with emphasis on development of a personal body of work approved by the Art Graduate Committee.

521: Advanced Studio Problems. 6-1-3-(6). Individual projects with emphasis on development of a personal body of work approved by the Art Graduate Committee.

522: Advanced Studio Problems. 6-1-3-(6). Individual projects with emphasis on development of a personal body of work approved by the Art Graduate Committee.

540: Advanced Crafts. 6-1-3-(6). Studio work involving the design and construction of two-dimensional and three-dimensional problems. Choice of media with consent of Art Graduate Committee.

541: Advanced Crafts. 6-1-3-(6). Studio work involving the design and construction of two-dimensional and three-dimensional problems. Choice of media with consent of Art Graduate Committee.

542: Advanced Crafts. 6-1-3-(6). Studio work involving the design and construction of two-dimensional and three-dimensional problems. Choice of media with consent of Art Graduate Committee.

550: Photographic Projects. 6-1-3-(9). Advanced photographic project in field of special interest.

564: Graduate Seminar. 6-1-3-(9). Guided study, discussion, and reading in art related to college level teaching.

566: Seminar in Art History. 6-1-3-(6). The study of art history using appropriate resources focusing on contemporary developments in art.

567: Studio Exhibition & Capstone Research. 6-1-3. Preparation of a public exhibition of artworks in the studio discipline and submission of a capstone research paper to the Art Graduate Committee.

570: Photographic Projects. 6-1-3-(9). Advanced photographic concepts and techniques. Practical and expressive application of photographic processes to the applied and fine arts.

571: Photographic Seminar. 6-1-3. Research paper with supportive audio/visual presentation.

572: Portfolio. 6-1-3-(9). Preparation of a portfolio.

573: Photographic Exhibition & Capstone Research. 6-1-3. Preparation of a public exhibition of artworks in the photography discipline and submission of a capstone research paper to the Art Graduate Committee.

574: Directed Projects in Graphic Design & Digital Imaging. 6-1-3 (9). Design project assigned by the Art Graduate Committee. Emphasis on development of practical experience in designer-client relationships and the use of advanced digital design technology to create and disseminate project work.

575: Directed Projects in Graphic Design & Digital Imaging. 6-1-3 (9). Design project assigned by the Art Graduate Committee. Emphasis on development of practical experience in designer-client relationships and the use of advanced digital design technology to create and disseminate project work.

576: Directed Projects in Graphic Design & Digital Imaging. 6-1-3 (9). Design project assigned by the Art Graduate Committee. Emphasis on development of practical experience in designer-client relationships and the use of advanced digital design technology to create and disseminate project work.

577: Directed Research in Graphic Design & Digital Imaging. 6-1-3 (9). Research project developed by student with the Art Graduate Committee. Emphasis on advanced application of abilities pertinent to contemporary graphic design such as use of digital design technology, expertise in traditional media imaging, and the creation of visual communications for corporations.

578: Directed Research in Graphic Design & Digital Imaging. 6-1-3 (9). Research project developed by student with the Art Graduate Committee. Emphasis on advanced application of abilities pertinent to contemporary graphic design such as use of digital design technology, expertise in traditional media imaging, and the creation of visual communications for corporations.

579: Graduate Seminar in Graphic Design Education. 0-3-3 (6). Discussion and guided research concerning college classroom and computer laboratory instruction in graphic design education.

580: Graphic Design Exhibition & Capstone Research. 6-1-3. Preparation of a public exhibition of artworks in the Graphic Design discipline and submission of a capstone research paper to the Art Graduate Committee.

BIOLOGICAL SCIENCES (BISC)

101: Fundamentals of Biology I. 0-3-3. **Not open to Biology majors.** Introduction to biological concepts of cell structure and physiology, genetics, evolution, and ecology. Master Course Articulation Matrix* [LCCN: CBIO 1013]

102: Fundamentals of Biology II. 0-3-3. Preq., BISC 101. **Not open to Biology majors.** Continuation of biological topics including origin of life, survey of the five kingdoms, plant and animal structure. Master Course Articulation Matrix* [LCCN: CBIO 1023]

130: Biological Principles. 0-3-3. Designed for students majoring in science. Introduction to biomolecules, cells, metabolism, genetics, evolution, and ecology. Master Course Articulation Matrix* [LCCN: CBIO 1033] or [LCCN: CBIO 1034]

131: Biological Principles Laboratory. 3-0-1. Student-oriented experiments and demonstrations emphasizing biomolecules, cells, metabolism, genetics, evolution, and ecology. Master Course Articulation Matrix* [LCCN: CBIO 1031] or [LCCN: CBIO 1034]

132: Biological Diversity. 0-3-3. Preq., BISC 130. An introduction to the classification, anatomy, and physiology of prokaryotes and eukaryotes. Master Course Articulation Matrix* [LCCN: CBIO 1043] or [LCCN: CBIO 1034]

133: Biological Diversity Laboratory. 3-0-1. Coreq., BISC 131. Investigations of the classification, anatomy, and physiology of prokaryotes and eukaryotes. Master Course Articulation Matrix* [LCCN: CBIO 1041] or [LCCN: CBIO 1034]

134: Botany. 0-3-3. **Not open to Biology majors.** Introduction to botany, including the biology of plants, fungi, bacteria, and viruses.

199: The Biology Connection. 0-1-1. (Pass/Fail). Designed to inform sophomore biology majors about advanced study techniques, resume and portfolio construction, research opportunities, standardized test taking, application procedures, and post-graduate studies.

200: Principles of Genetics. 0-3-3. **Not open to Biology majors.** Fundamental laws of heredity as applied to plants, animals, and humans. Master Course Articulation Matrix* [LCCN: CBIO 2513]

201: Scientific Principles. 0-3-3. **Not open to Biology majors.** A general course embracing the principles of the biological and physical sciences, incorporating teacher demonstration and laboratory activities.

203: Introduction to Oceanography. 0-3-3. A survey of the oceans; their nature, structure, origin, physical features, life forms, circulation, composition, and natural resources. Credit will not be given for BISC 203 if credit is given for GEOL 203.

211: Introduction to Environmental Sciences. 0-3-3. Basic laws, principles, and issues related to causes, effects, and controls of environmental problems including human-environment interactions. Credit will not be given for BISC 211 if credit is given for ENSC 211. Master Course Articulation Matrix* [LCCN: CEVS 1103]

212: Conservation and Management of Natural Resources. 0-3-3. An introduction to the management of renewable resources including the use, conservation, and sustainability of these resources. Credit will not be given for BISC 212 if credit is given for ENSC 212.

214: Survey of Microbiology. 4-3-4. **Not open to Biology majors.** Fundamental concepts of microbiology, emphasizing techniques and laboratory procedures used in medically related studies. Master Course Articulation Matrix* [LCCN: CBIO 2104]

216: Plant Biology. 0-3-3. Preq., BISC 130, 131. Introduction to the biology of plants including growth, morphology, physiology, genetics, diversity, and propagation. Master Course Articulation Matrix* [LCCN: CBIO 2313] or [LCCN: CBIO 2314]

217: Plant Biology Laboratory. 3-0-1. Preq. or Coreq., BISC 216. Exploration and application of plant biology concepts and processes. Master Course Articulation Matrix* [LCCN: CBIO 2311] or [LCCN: CBIO 2314]

224: Essentials of Human Anatomy and Physiology. 0-3-3. Preq., Consult with your advisor. Not open to Biology majors. The structure and functions of the organ systems of the human body, including anatomy of the vocal and hearing mechanisms.

225: Human Anatomy and Physiology I. 0-3-3. Preq., Consult with your advisor. Introduction to human anatomy and physiology including structure and function of cells, tissues, organs and the integumentary, skeletal, muscular, and nervous systems. Master Course Articulation Matrix* [LCCN: CBIO 2213] or [LCCN: CBIO 2214]

226: Human Anatomy and Physiology Laboratory I. 3-0-1. Preq., BISC 225, or concurrent enrollment. Specially designed exercises permitting students to observe the physiology and anatomy of mammals. Master Course Articulation Matrix* [LCCN: CBIO 2211] or [LCCN: CBIO 2214]

227: Human Anatomy and Physiology II. 0-3-3. Preq., BISC 225 or equivalent. A continuation of 225. Including structure and function of circulatory, respiratory, digestive, excretory, endocrine and reproductive systems. Master Course Articulation Matrix* [LCCN: CBIO 2223] or [LCCN: CBIO 2224]

228: Human Anatomy and Physiology Laboratory II. 3-0-1. Preq., BISC 227, or concurrent enrollment. Additional laboratory exercises to illustrate the anatomy and physiology of animals. Master Course Articulation Matrix* [LCCN: CBIO 2221] or [LCCN: CBIO 2224]

240: Student Research. 1 credit hour (2). Preq., Written permission of instructor. Student participation in faculty-directed laboratory or field-based research activities.

246: Instrumentation. 4-2-3. Preq., 8 semester hours of biological or chemical sciences. Emphasizes laboratory safety and the operational theory, use, and maintenance of instruments appropriate to biological, environmental, and medical investigations. Credit will not be given for BISC 246 if credit is given for ENSC 246.

250: Introduction to Clinical Laboratory Sciences. 4-1-2. Introduction to the curriculum and profession including computer utilization in problem solving, professional awareness, pre-clinical/clinical articulations, and information sources in medical technologies.

260: Microbiology. 4-3-4. Preq., CHEM 100, 101; BISC 130, 131. Designed for students majoring in science. Course will cover topics in clinical, applied, environmental, and eukaryotic microbiology. Master Course Articulation Matrix* [LCCN: CBIO 2124]

275: Aquatic Bioassays. 0-1-1. Internet-based course centering on governmental regulations concerning bioassays to test for toxicity in waste effluents released into natural waters in the United States. Credit will not be given for BISC 275 if credit is given for ENSC 275.

284: Introduction to Marine Science. 8-3-4. Preq., BISC 132, 133. Introduction to chemical, geological, and biological processes in the oceans and coastal environments; interrelationships of humans and the marine environment. Five weeks spent at the Louisiana Universities Marine Consortium Coastal Laboratory.

285: Introduction to Marine Zoology. 8-3-4. Preq., BISC 132, 133. Survey of marine animals, particularly those of the Louisiana Gulf Coast, including classification, morphology, physiology, and ecology. Five weeks at the Louisiana Marine Consortium Coastal Laboratory.

301: Essentials of Exercise Physiology. 0-1-1. This on-line course will survey the central concepts of human exercise with regard to both theory and applications of fitness and performance.

310: Genetics: 4 1/4-2-3. Preq., BISC 132, 133. Principles of inheritance in plants and animals at the biochemical, cellular, organismal, and population levels. Master Course Articulation Matrix* [LCCN: CBIO 3524]

313: Ecology. 4 1/4-2-3. Preq., BISC 132, 133. An overview of the interactions of plants, animals, and non-living factors as they influence individuals, populations, communities, and ecosystems. Credit will not be given for BISC 313 if credit is given for ENSC 313. Master Course Articulation Matrix* [LCCN: CBIO 4124]

315: Cell Biology. 0-3-3. Preq., BISC 132, 133. Detailed study of the structural and functional organization of the cell and the interactions of the organelles with respect to metabolism and heredity. Master Course Articulation Matrix* [LCCN: CBIO 4143]

320: Animal Physiology. 0-3-3. Preq., BISC 132, 133. A general and comparative approach to the principles and concepts of physiology which apply to animal systems. Master Course Articulation Matrix*

321: Animal Physiology Laboratory. 4-0-1. Laboratory studies in animal physiology. Master Course Articulation Matrix*

341: Hematology. 4 1/2-2-3. 8 semester credits of BISC. Quantitative and qualitative methods for determining the condition of cellular blood and a study of its histology, morphology and physiology.

343: Medical Microbiology and Immunology. 4-3-4. Preq., BISC 214 or 260. Lecture and laboratory exposure to principles of pathogenic bacteriology, immunology, virology, mycology, and parasitology with a diagnostic emphasis.

344: Clinical Chemistry and Toxicology. 4-3-4. Preq., CHEM 104. Study of the pathological and biochemical significance of analytes and toxic substances found in human body fluids, including methods of analysis and quality assurance.

360: Biological Problems. 1 - 3 hour(s) credit (6). Preq., Junior standing and written permission of instructor. An introduction to the principles of research.

361: Laboratory Assisting. 1-3 hour(s) credit (3). Preq., Junior standing and written permission of instructor. Experience in biological science laboratory assisting in student instruction and practice.

401: Parasitology. 3-2-3. Preq., BISC 132, 133. Protozoan and helminthic parasites of medical and veterinary importance to humans with emphasis on morphology, life cycles, pathogenesis, diagnosis, and control.

402: Immunology. 0-3-3. Preq., BISC 260. A study of antigens and antibodies including the chemical basis of antigen-antibody specificity, mechanisms of hypersensitivity, immunological modulators, and immunological diseases.

404: Immunology Laboratory. 3-0-1. Preq. or Coreq., BISC 402. Laboratory exercises in immunology to include precipitation, agglutination procedures, isotopic and nonisotopic immunoassays, reagent preparation and validation.

407: Histology. 8 1/2-1-3. Preq., BISC 320, 321, or equivalent. Microscopic study of animal tissues with emphasis on functional and structural interrelationships.

408: Bacterial Genetics. 3-2-3. Preq., BISC 260, 310. Topics include nucleic acid effectors in prokaryotes, mutations, phage genetics, and molecular methods of studying gene structure/function.

409: Virology. 3-2-3. Preq., CHEM 250. Viruses and their relationship to disease in plants, animals, and bacteria.

410: Advanced Genetics. 4 1/4-2-3. Preq., BISC 310 or consent of the instructor. Principles and methods for analyzing biochemical and chromosomal polymorphisms, metabolic pathways, pedigrees, and population differentiation with emphasis on humans.

411: Developmental Biology. 6-2-3. Preq., BISC 132, 133. A study of gametogenesis, fertilization, and the embryological development of organisms using descriptive and experimental approaches. Master Course Articulation Matrix*

420: Environmental Animal Physiology. 0-3-3. Preq., BISC 320. Functional adaptations of animals to their environments, with emphasis on vertebrates.

422: Molecular Biology. 0-3-3. Preq., BISC 310. Emphasis on eukaryotic DNA, RNA structures, mechanisms of replication, transcription, translation, regulation, and control of gene expression.

423: Essentials of Endocrinology. 0-2-2. An introduction to mammalian endocrinology with special emphasis on the human endocrine system.

426: Evolution. 0-3-3. Preq., BISC 130, 131, or 101, 102, or equivalent. A study of the concepts, problems, and methods involved in the formulation of modern evolutionary theory.

438: Marine Microbiology. 8-3-4. Preq., BISC 130, 131, 132, 133. Introduction to the marine and estuarine microbes, especially bacteria and fungi; covers classification, methodology, role in marine ecosystems, biogeochemical cycles and diseases of marine animals. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

439: Marine Science for Teachers. 2-8-3. Survey of the marine sciences, techniques for teaching marine science at secondary and elementary school levels. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

445: Immunohematology. 3-1-2. Preq. BISC 341 or consent of instructor. Principles of donor screening, immunological testing for compatibility, tests for infectious agents and record keeping associated with transfusion medicine.

447: Principles of Pharmacology. 0-3-3. Preq. 8 credit hours of biological and/or chemical sciences. The classification, modes of action, and therapeutic utility of common pharmacological agents are described.

450: Biological Topics. 1-4 hour(s) credit (8). An opportunity to observe and discuss topics of current interest in the biological and/or medical sciences. Offered on demand.

454: Microbial Ecology and Diversity. 4-2-3. Preq., BISC 260. A contemporary approach to examining the evolution and interactions of prokaryotic and eukaryotic microbes in their natural environments.

461: Environmental Literature. 0-3-3. Interdisciplinary exploration of environmental and biological themes and topics and their presentation in literary, scientific, and philosophical texts.

463: Cancer Biology. 0-3-3. An in depth analysis which emphasizes the cellular and molecular mechanisms involved in the transformation of normal cells to neoplastic disease.

464: Principles of Pathology. 0-3-3. An overview of pathological processes and cellular responses to achieve an understanding of the disease state at the molecular, cellular, tissue, and organ levels.

466: Medical Anthropology. 0-3-3. Introduction to medical anthropology, including non-western perspectives on disease causation and curing, paleopathology, ethnomedicine, ethnopsychiatry, shamanism, alternative medicine and biocultural approaches to health problems.

470: Medical Ethics. 0-3-3. Reading and discussions of the application of various principles of ethics to questions of medical practice.

478: Practica/Internship/Cooperative Education in Biological Sciences. 1-3 hours credit. May be repeated once. (Pass/Fail). On site, supervised, structured work experiences. Application and supervision fee required.

480: Undergraduate Seminar. 0-1-1. Preq., Senior standing. Required of all senior BISC majors. Supervised study, reports, and discussion of current biological literature. Credit will not be given for BISC 480 if credit is given for ENSC 400.

482: Introduction to the Human Brain. 0-2-2. This on-line course will provide an overview of the major structural and functional features of the human brain.

483: Marine Botany. 8-3-4. Preq., BISC 132, 133. Study of marine and coastal algae and vascular plants including classification, morphology, life cycles, and ecology. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

484: Marine Vertebrate Zoology. 8-3-4. Preq., BISC 132, 133, plus 8 additional hours of biology. General study of the marine chordates with particular emphasis on fishes, including classification, structure, function, and ecology. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

485: Marine Ecology. 8-3-4. Preq., BISC 132, 133; CHEM 102, 104. Relationships of marine estuarine organisms to environmental factors; interactions among organisms, communities and ecosystems of the Louisiana coastal zone. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

486: Marine Invertebrate Zoology. 8-3-4. Preq., BISC 132, 133. General study of the classification, structures, function, and ecology of marine and estuarine invertebrates, emphasizing those of the Louisiana Gulf Coast. Five weeks at the Louisiana Universities Marine Consortium Coastal Laboratory.

490: Microscopy Techniques. 0-3-3. An introduction to the theory and practice of microscopy and histological techniques.

491: PCR – Methods and Applications. 0-3-3. Preq., BISC 260, 310. Nucleic acid extraction methods, and PCR-based techniques for analysis/detection/genotyping of clinical, environmental, archival samples.

492: Protein Analysis. 3-2-3. Introduction to laboratory methods used in the analysis of proteins, including extraction, determination of concentration, chromatography, and electrophoresis.

493: Animal Behavior. 0-3-3. In-depth treatment and discussion of the proximate and ultimate causes of animal behavior.

501: Graduate Parasitology. 3-2-3. Biology, physiology, morphology, and ecology of the major parasites of humans and domestic animals.

502: Research Methods in Biological Sciences. 0-3-3. Preq., graduate status. An introduction for graduate students to basic methods used in research in the biological sciences.

503: Graduate Immunology Laboratory. 3-0-1. Laboratory training in the preparation, titration, purification, and detection of antigens and antibodies.

508: Graduate Bacterial Genetics. 3-2-3. Regulation of gene expression, DNA transfer, mutations, and molecular tools in genome analysis.

509: Biological Sciences Seminar. 0-1-1 (2). Survey of literature on current topics in either Bacteriology, Botany, Microbiology, or Zoology, where appropriate.

510: Anatomy and Physiology for Teachers. 0-3-3. Structure and function of the human body from the molecular to the systems level. Credit not available towards graduate degrees in School of Biological Sciences.

511: Graduate Developmental Biology. 6-2-3. Study of the reproductive and developmental events in organisms emphasizing both observational and experimental methods.

512: Advanced Immunology. 0-3-3. A study of the innate and adaptive immune systems; including humoral and T-cell immunity, specificity of T-cell and B-cell cell receptors, allergy, and hypersensitivity.

513: Ecological Topics. 0-3-3 (6). Preq., BISC 313, or 413. An advanced study of selected ecological topics. Offered on demand.

514: Graduate Advanced Genetics. 4¼-2-3. Principles and methods for analyzing biochemical and chromosomal polymorphisms, metabolic pathways, pedigrees, and population differentiation, with emphasis on humans.

516: Contemporary Topics. 1-4 hour(s) credit. An opportunity to examine and discuss a variety of timely topics pertaining to the biological sciences. May be repeated with a change in subject matter.

517: Applied Biological Sciences Research. 6-1-3. Preq., BISC 502. Laboratory or field studies for non-thesis Master of Science students in the biological sciences. Provides graduate training in applied research skills.

521: Principles of Cell and Molecular Biology. 0-3-3. Principles of cell and molecular biology, including molecular structure and function, cellular processes, bioenergetics, and regulation of metabolism.

522: Graduate Molecular Biology. 0-3-3. Emphasis on protein structure and function, DNA and RNA, replication, transcription, translation, and control of gene expression. Molecular techniques including transformation, plasmids, PCR, and blotting.

526: Graduate Histology. 8 ½-1-3. Microscopic study of animal tissues with an emphasis on structural and functional relationships.

530: Biological Sciences Special Problems. 1-6 hours. Preq., written permission of instructor and Advisory Committee Chairperson. No more than 6 hours credit combined with BISC 540 and 541.

535: Current Topics in Biological Sciences. 0-1-1 (4). Preq., graduate status. An interactive discussion of current issues and problems in the biological sciences. May be repeated for credit with change of course content.

540: Biological Sciences Internship. 40-0-3. Preq., Graduate standing, consent of Advisory Committee Chairperson and Instructor. Career-oriented job experiences. No more than 6 hours credit combined with BISC 530, 540, or 541.

541: Biological Sciences Internship. 40-0-3. Preq., Graduate standing, consent of Advisory Committee Chairperson and Instructor. Career-oriented job experiences. No more than 6 hours credit combined with BISC 530, 540, or 541.

551: Research and Thesis in Biology. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

554: Graduate Microbial Ecology and Diversity. 4-2-3. A detailed study of the interactions of prokaryotic and eukaryotic microbes and their evolution.

561: Graduate Environmental Literature. 0-3-3. Interdisciplinary exploration of environmental and biological themes and topics and their presentation in literary, scientific, and philosophical texts.

562: Graduate Virology: 3-2-3. Intermediate and advanced concepts related to virology, with emphasis on virus nomenclature, structure, taxonomy, replication, and the consequences of virus infections in organisms and populations.

563: Graduate Cancer Biology. 0-3-3. An in depth analysis which emphasizes the cellular and molecular mechanisms involved in the transformation of normal cells to neoplastic disease.

564: Graduate Principles of Pathology. 0-3-3. An overview of pathological processes and cellular responses to achieve and understanding of the disease state at the molecular, cellular, tissue, and organ levels.

566: Graduate Medical Anthropology. 0-3-3. Anthropology of medicine emphasizing non-western perspectives of disease causation and curing, ethnic psychoses, ethnobotany, human disease history, alternative medicine and biocultural approaches to health issues.

570: Graduate Medical Ethics. 0-3-3. Intensive discussions, presentations, and readings concerning the theories of ethics and their applications to the practices of the health professions.

585: Comprehensive Examination in Biological Sciences. No credit. Preq., Written Permission of Instructor. Written comprehensive exam, required for all students enrolled in the Master of Science in Biology Non-Thesis plan. (Pass/Fail).

590: Graduate Microscopy Techniques. 0-3-3. Theory and techniques necessary for microscopy and histological studies.

591: Graduate PCR – Methods and Applications. 0-3-3. DNA and RNA extraction and analysis techniques, including real-time approaches for gene expression studies.

592: Graduate Protein Analysis. 3-2-3. Laboratory methods used for protein analysis. Techniques include protein extraction and quantification, polyacrylamide electrophoresis, and blotting.

593: Graduate Animal Behavior. 0-3-3. In-depth treatment and discussion of the proximate and ultimate causes of animal behavior.

BIOMEDICAL ENGINEERING (BIEN)

202: BME Principles I. 0-1-1. Preq., MATH 241. Basic qualitative and quantitative principles of biomedical engineering are presented. The general field of biomedical engineering is reviewed with introduction of conservation and modeling concepts.

203: BME Principles II. 0-1-1. Preq., MATH 241. An introduction to the application of computers to Biomedical problems.

204: BME Principles III. 0-1-1. Preq., BIEN 203. An introduction to the role of engineering in analyzing physiological systems and in designing devices and instrumentation to study and treat biomedical problems.

225: Biomedical Signals and Systems. 0-3-3. Preq., ENGR 221 and MATH 244. Analysis techniques for frequency and time domain signals that occur in linear and non-linear physiological systems. Lumped modeling of physiological phenomena.

230: Biomaterials. 0-2-2. Preq., MEMT 201. Compatibility of materials for use in biomedical applications.

301: Biomedical Fluid Mechanics and Biomedical Energy Transport. 0-3-3. Preq., BIEN 202, ENGR 222, and cumulative Math GPA of at least 2.0 in Math 241 through 245. The principles of fluid mechanics and thermal energy exchange (momentum and energy balances) in biomedical systems.

310: Introduction to Clinical Engineering. 3-2-3. Preq., BIEN 202. A foundation course in medical and clinical terminology, medical instrumentation, medical sciences, hospital procedure and medical practice from an engineering perspective.

320: Bioenergetics. 0-3-3. Preq., MATH 242, PHYS 201, BIEN 204. The thermodynamics of living systems. The laws of thermodynamics are emphasized and applied to biological systems.

321: Biomedical Engineering Animal Physiology Lab. 4-0-1. Preq or Coreq., BIEN 325. Laboratory experiments for safely collecting physiological signals from living systems and applying data filtering and analysis.

325: Bioinstrumentation. 3-2-3. Preq., BIEN 225, PHYS 202, BISC 227, cumulative Math GPA of at least 2.0 in Math 241 through 245. Analysis and design of biomedical instrumentation. Basic circuitry, electronics and laboratory techniques including transducers, biopotentials, amplifiers, measurement and safety.

400: Biomedical Engineering Seminar. 3-0-1. Preq., BIEN 401, 425. Instruction and practice in conference-type discussions of technical and professional matters of interest to biomedical engineers.

401: Biomedical Mass Transport. 0-3-3. Preq., BIEN 301, MATH 245. The principles of mass balances and transport phenomena in biomedical systems. Analysis of engineering and physiological systems and incorporation of these principles into the design of such systems.

402: Biomedical Engineering Design I. 0-2-2. Preq., BIEN 403, 430; ENGL 303. Individualized design projects requiring integration and synthesis of prior engineering, life science, design and analytical skills. Utilization of the engineering design process and consideration of biomaterials, biomechanics, human factors, ethical and legal concerns, and oral and written communication skills.

403: Physiological Control Systems. 0-3-3. Preq., BIEN 401, 425. Methods for analyzing and designing linear feedback systems. Physiological control mechanisms presented qualitatively and quantitatively. Design of systems involving physiological systems.

404: Biomedical Engineering Design II. 0-2-2. Preq., BIEN 402, BIEN 435. A continuation of BIEN 402.

410: Clinical Engineering Internship. 20-20-6. Preq., BIEN 310 or equivalent and consent. A practical exposure to the health care delivery system. Application of engineering principles to problems unique to that system.

420: Biomaterials and Biomechanics. 0-3-3. Preq., BIEN 301, ENGR 220. Properties of living tissue. Biocompatibility. polymers, metals, and ceramics as biomaterials. Implants for hard and soft tissue. Fundamentals of biomechanics.

425: Advanced Biomedical Instrumentation Systems. 3-2-3. Preq., BIEN 325, MATH 245. Further analysis and design of biomedical instrumentation. Practical aspects of ideal and real operational amplifiers, and an introduction to microprocessor interfacing.

430: Biomechanics. 0-3-3. Preq., BIEN 230, 301, ENGR 220. Mechanical properties and reactions of biological tissues and organs. Analysis of stress, strain and strain rate for biological and bio-artificial components.

435: Senior Biomedical Engineering Laboratory. 3-0-1. Preq., BIEN 403 and 430. Laboratory experiments that demonstrate concepts and techniques in biofluid mechanics, biomechanics, and biological mass transport.

450: Special Topics. 1-4 semester hours credit. May be repeated for credit. Preq., senior standing and consent of instructor. Problems covering selected topics of current importance or special interest or need.

455: Biotechnology and Bioprocesses. 0-3-3. Preq., BIEN 301, 401. Introduction to biotechnology and bioprocesses. Microbiology and biochemical reactions are reviewed. Enzyme kinetics, microbial growth transport phenomena, and design of biochemical reactors are studied. Cross-listed with CMEN 455. **(G)**

471: Neuroscience and Neural Engineering. 0-3-3. Principles of neuroscience encompassing structure and function of the nervous system at the molecular, cellular, and system levels, including the visual, auditory, and motor systems.

472: Neuroscience Laboratory. 4-0-1. Laboratory studies in neuroscience with a concentration on standard histological, anatomical, and physiological techniques.

500: Systems Physiology for Biomedical Engineers. 0-4-4. Preq. Graduate standing and permission of the instructor. Principles of human physiology, including cellular physiology, and the nervous, muscular, cardiovascular, and respiratory systems for engineers. Graduate core course.

501: Physiological Modeling I. 0-4-4. Preq., BIEN 500 and Differential Equations, or consent of instructor. Principles of transport phenomena and mathematical modeling with applications to biomedical systems and devices.

502: Biotransport Phenomena. 0-3-3. Preq., BIEN 501. A continuation of BIEN 501.

503: Physiological Modeling II. 0-3-3. Preq., BIEN 501 or consent of instructor. Application of mathematical modeling and engineering analysis to physiological components and systems. Feedback mechanisms for homeostasis. Computer project implementation.

510: Bioinstrumentation. 0-4-4. Preq., Graduate standing and consent of instructor. Introduction to medical instrumentation systems, biosensors, biopotentials, signal conditioning, analog-to-digital conversion, and signal processing. Graduate core course.

512: Advanced Biomedical Signal Processing. 0-3-3. Preq., BIEN 510. Methods and application of signal processing to biomedical applications.

515: Biosensors and Their Applications. 4-2-3. Permission of instructor. Introduction to biosensors in general with special emphasis on oxygen biosensors and their development. Surgical techniques and laboratory procedures for animal experimentation.

516: BioMEMS. 0-3-3. Introduction to BioMEMS. Emphasis on BioMEMS construction, microfluidic theory, and applications in biology and medicine.

520: Protein Engineering. 0-3-3. Preq., Approval of instructor. Protein structure and function, DNA structure, protein design, gene design, biophysical techniques for analysis of protein structure, proteins and peptides in biotechnology, biomedicine, and nanosystems bioengineering.

523: Nanomedicine. 0-3-3. Preq., BIEN 500. This course covers biomedical applications including nanomaterials, nanoengineering, related drug delivery systems, nano-based imaging and diagnostic systems, nanotoxicology, and translating nanomedicines into clinical investigation.

530: Biomedical Materials. 0-3-3. Advances in biomaterial science and engineering. Topics include biological responses, and applications to artificial organs, tissue engineering and drug delivery.

533: Biomedical Optics. 0-3-3. Preq., BIEN 510 and instructor approval. Interaction of radiation with cells and tissue. Diagnostic and therapeutic applications of optics in medicine and biology. Point measurements, imaging, and microscopy.

540: System Analysis and Mathematical Modeling of Physiological Phenomena. 0-3-3. Preq., permission of instructor. The course deals with the analysis of biological systems and the theory behind the development and solution of mathematical models for the description of biological system behavior.

550: Special Topics. 1 - 4 hours credit. Preq., Permission of instructor. May be repeated for credit. Selected topics dealing with advanced subjects in Biomedical Engineering.

551: Research and Thesis in Biomedical Engineering. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques. (Pass/Fail).

556: Biomedical Engineering Internship. 20-0-6. Preq., permission of instructor. Graduate level internship emphasizing application of engineering design principles in a research, health care or rehabilitation setting.

557: Special Topics: Biomedical Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of biomedical engineering. May be repeated as topics change.

560: Review of Assistive Technology in Rehabilitation. 0-3-3. Preq., permission of instructor. Study of physical disabilities and the rehabilitation process.

562: Rehabilitation Engineering & Assistive Technology I. 3-2-3. Preq., BIEN 560. Assessment and the development of engineering solutions in rehabilitation. Emphasis on seating and positioning, mobility, work, and activities of daily living.

563: Rehabilitation Engineering & Assistive Technology II. 3-2-3. Preq., BIEN 560. Assessment and the development of engineering solutions in rehabilitation. Emphasis on transportation and augmentative communication.

570: Artificial Intelligence Applications in Biomedical Engineering. 0-3-3. Preq., Prior introduction to artificial intelligence fundamentals. Artificial intelligence and expert systems application in medical and biomedical problems. Fundamental contributions of medical expert systems.

571: Graduate Neuroscience and Neural Engineering. 0-3-3. Principles of neuroscience encompassing structure and function of the nervous system at the molecular, cellular, and system levels, including the visual, auditory, and motor systems.

572: Cellular Neuroscience Instrumentation. 0-3-3. Modern measurement methods for the cellular neuroscientist and biomedical engineer are presented. Topics include image acquisition and analysis, electrophysiology, and signal processing.

573: Integrative Neuroengineering. 0-3-3. Emphasis is placed on cell-cell integration in the nervous system to include intercellular communication such as synapses and gap junctions, and cell-materials integration such as application for nanotechnology in neuroscience.

575: Artificial Neural Networks. 0-3-3. Major classes of neural networks are presented with focus on their basic principles and computational properties. Topics such as statistical pattern recognition, standard neural network models and learning algorithms are discussed.

576: Quantitative Neuronal Systems. 0-3-3. Mathematical models of neuronal activities. Biophysics of ion channels, gating and synaptic transmission, and structural and functional neural models are discussed for single cells and networks. These topics are integrated with linear algebra, differential equations, probability theory, information theory and optimization.

582: Impact of Biomedical Innovations. 0-3-3. Biomedical innovations improve health but also create social, legal, and/or economic issues. Learn how selected medical devices work with the body to improve health and their impact beyond the clinic.

599: Graduate Seminar. 0-1-1. (Pass/Fail). Issues in graduate education. Presentations of current topics in research, teaching, and practice. May be repeated for credit.

610: Doctoral Seminar in Biomedical Engineering. 0-3-3(3). (Pass/Fail). Required for PhD Biomedical Engineering students each Fall. The seminar will cover research methodology, issues in graduate education, and presentations on current research by faculty, doctoral students, and distinguished visitors. Only 3 semester hours will apply toward the candidates plan of study.

650: Directed Study in Biomedical Engineering. 1-3 hours of credit (6). Directed in-depth study of a highly specialized topic. Topics and course policies to be established by instructor for each student.

651: Dissertation Research. (Pass/Fail). Doctoral students only. Registration in any quarter is for 3 semester hours or multiples thereof, up to a maximum of 9 semester hours per quarter. Maximum credit applicable towards the degree is 30 semester hours.

657: Selected Topics in Biomedical Engneering. 0-3-3. The topic or topics will be selected by the instructor from a specialized area of biomedical engineering.

685: Doctoral Qualifying Examination. No credit. (Pass/Fail). Doctoral standing required. Required for all students seeking to take the qualifying examination in biomedical engineering. Successful completion is a pre-requisite for admission to candidacy.

BUSINESS (BUSN)

110: Introduction to Business. 0-3-3. A foundations course that emphasizes decision-making and entrepreneurial activities in an ever-changing world economy. Master Course Articulation Matrix* [LCCN: CBUS 1003]

115: Consumer Finance and Money Management. 0-3-3. A practical guide to money management emphasizing consumer financial planning. Topics include debt, insurance, investments, credit, home purchase, income tax, and basic consumer legal considerations.

150: Academic Counseling. 0-1-1. (Pass/Fail). Preq., Consent of instructor. Identification and supervision of students in business needing additional academic counseling.

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit**.**

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit**.**

300: Special Problems. 0-3-3. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Topic will determine course admissions criteria.

301: Independent Study. 1-3 hours credit. Preq., approval of instructor and department head. Selected contemporary business and economics topics. Normally taken only by business students in their curricular specialty.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit**.**

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit**.**

400: Special Problems. 0-3-3. Preq., Approval of instructor, department head, and dean. Special contemporary business and economic topics. Topic will determine course admissions criteria.

401: Independent Study. 1-3 hours credit. Preq., Approval of instructor, department head, and dean. Selected contemporary business and economic topics in a student's curricular specialty.

410: Internship in Business Administration. 3 hours credit. (Pass/Fail). Preq., consent of instructor and senior standing. On-site, supervised, structured work experiences in the field of business.

420: Career Preparation Seminar. 0-1-1. (Pass/Fail). Preq., Senior standing the the College of Business. Survey course for students in business in preparation for career assessment and employment.

425: Critical Thinking in Business. 0-3-3. Preq., Junior standing. The study and application of critical thinking for managers and leaders in the business environment.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Business. May be repeated for credit.

495: Business Administration Capstone. 0-3-3. Preq., all core business courses and senior standing in the College of Business. Administrative policy determination through integration and application of knowledge gained in previous courses; emphasizes interrelationships of major functions of business under conditions of uncertainty; utilizes case study approach.

500: Critical Thinking for Business. 0-3-3. The study and application of critical thinking in the business environment.

501: Global Perspectives in Management. 0-3-3. Analysis of social, cultural, economic, technological, legal and political forces impacting business in a global environment.

550: Directed Study in Business. 1-3 hours credit. Hours and credits to be arranged. Preq., Consent of Instructor and Approval of Department Head. Special problem or specific area of business.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Business.

598: Certificate Completion. No Credit. (Pass/Fail). Preq., Graduate Standing and Consent of College of Business Graduate Director. Required for all students completing a Graduate Certificate program.

610: Current Topics in Research. 0-3-3. (Pass/Fail). May be repeated. Required of resident DBAs each quarter. Non-degree credit. Research methodology, current research of doctoral candidates, faculty, invited lecturers.

650: Directed Study in Business. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of business.

651: Research and Dissertation. (Pass/Fail). Doctoral students only. Registration in any quarter is for 3 semester hours or multiples thereof, up to a maximum of 6 semester hours per quarter. Maximum credit applicable towards the degree is 72 semester hours.

685: Oral Comprehensive Exam. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students. Successful completion of the oral comprehensive exam is a prerequisite to beginning the doctoral dissertation. Requires consent of graduate director and advisory committee chair.

686: Statistical Tools Qualifying Exam. No credit. (Pass/Fail). Doctoral standing and consent of graduate director. All business doctoral students are required to take the statistical tools qualifying exam upon completion of QA coursework.

BUSINESS COMMUNICATION (BSCM)

305: Communication. 0-3-3. Preq., ENGL 102. Theory and nature of communication in organizational settings, interpersonal communication, written business communication, listing, communications. Analysis of business problems and preparation of written/oral solutions. Master Course Articulation Matrix*

520: Directed Research and Readings. 0-3-3. Research methodology; problems requiring independent organization of research, implementation, outline of solution, and preparation of reports. Emphasis placed on problem solving for policy-making decisions.

620: Business Research Methods. 0-1-1(3). A study of research methodology used in business administration, a review of research completed in respective DBA areas, and the development of a dissertation proposal. (May be repeated for a total of 3 hours credit.)

BUSINESS LAW (BLAW)

255: Legal Environment of Business. 0-3-3. Studies relations and effect of law on business, society, and the individual, including ethical considerations, history, court system, torts, government regulation, contracts, and business organization. Master Course Articulation Matrix* [LCCN: CBUS 2103]

356: Commercial Law. 0-3-3. Preq., BLAW 255. A study of specific topics of law essential to the business decision-making process. Areas of law covered include contracts, commercial paper, agency, and sales.

410: Business Law for Accountants. 0-3-3. Preq., BLAW 255 and senior standing. A concentrated study of all topical areas of business law. Coverage includes contracts, credit transactions, governmental regulations, business organizations, bankruptcy, and property and related topics.

441: Real Property. 0-3-3. Preq., BLAW 255. Estates in land, titles, deeds, mortgages, leases, land contracts, minerals, easements and successions.

447: Personnel Law. 0-3-3. Preq., junior standing. A survey of landmark cases involving the labor movement, federal and state wage and hour laws, industrial relations, and current issues in personnel law. (Cannot be taken for credit if student has credit for MGMT 447).

510: Business Law for Accountants. 0-3-3. Preq., BLAW 255. A concentrated study of all topical areas of business law. Credit is not given for BLAW 510 if credit is given for BLAW 410.

CHEMICAL ENGINEERING (CMEN)

202: Chemical Engineering Calculations. 0-3-3. Preq., MATH 241; Coreq., ENGR 122. Problems and recitation in material and heat balances involved in chemical processes. Application of Chemical Engineering and chemistry to manufacturing in chemical industries.

213: Unit Operations-Design I. 0-3-3. Preq., MATH 243; Coreq., CMEN 202. Design procedures for equipment and processes involving fluid flow and fluid mixing, with emphasis on computer assisted design techniques.

301: Chemical Engineering Seminar. 0-1-1. Designed for chemical engineering majors: includes talks from industry representatives, Career Center staff, and faculty on current problems and relevant practices in Chemical Engineering.

304: Transport Phenomena. 0-3-3. Preq., CMEN 213, 313, 413, MATH 245, cumulative GPA≥ 2.0 for Math 240 through Math 244. Fundamental principles of energy, mass, and momentum transfer and transport processes.

313: Unit Operations-Design II. 0-3-3. Preq., CMEN 213, MATH 244. Design procedures for equipment and processes involving heat transfer, with emphasis on computer assisted design techniques.

332: Chemical Engineering Thermodynamics II. 0-3-3. Preq., CHEM 311, MATH 245, ENGR 222, cumulative Math GPA of at least 2.0 in Math 241 through 245. Estimation of thermodynamic properties from equations of state. Application of thermodynamic equilibria to physical and chemical equilibria. Energy analysis of processes.

354: Chemical Engineering Junior Laboratory. 4.5-1-2. Preq., CMEN 313. Laboratory study of fluid phenomena, heat transfer processes and equipment, and evaporation.

402: Chemical Reaction Engineering. 0-3-3. Preq., senior standing. Homogenous and heterogeneous chemical reaction kinetics, applications to ideal and real reactor types. **(G)**

407: Instrumentation and Automatic Process Control. 1-3-3. Preq., senior standing. Survey of process instrumentation methods, and the analysis and design of feedback, feed forward, and cascade control systems. **(G)**

408: Pulp and Paper Processes. 0-3-3. Preq., senior standing in CMEN. Introduction to the pulp and paper industry, its terminology, technology and economics. Conversion of various cellulosic materials into unbleached pulp and paper products. **(G)**

411: Environmental Chemodynamics. 0-3-3. Preq., CMEN 413 and senior standing in CMEN. A study of the modeling and prediction of the movement and fate of synthetic chemicals in the air-water-earth environments. Cross-listed with CVEN 411. **(G)**

413: Unit Operations-Design III. 0-3-3. Preq., CMEN 313. Application of design procedures for equipment and processes involving distillation, extraction, gas absorption, desorption, adsorption, and ion-exchange, with emphasis on computer assisted design techniques.

415: Theory and Practice of Radiation Protection and Shielding. 0-3-3. Preq., senior standing. An introduction to principles of dosimetry. The concepts of probability of causation, risk assessment, and methods of establishing exposure limits will be discussed. **(G)**

420: Nanosystems Modeling. 0-3-3. Preq., CHEM 251. Application of molecular simulation to nanosystems engineering problems. Molecular modeling principles and techniques such as quantum mechanics, molecular dynamics, and Monte Carlo methods.

425: Numerical Methods for Chemical Engineers. 0-3-3. Preq., CMEN 202; Coreq., MATH 245. An introduction to numerical methods for the solution of chemical engineering-related problems. Additional homework and an individual project are required for graduate credit. **(G)**

431: Chemical Plant Design I. 0-3-3. Preq., "C" or better in CMEN 202, 213, 313, 332, 413. An introduction to applied process economics and to process hazards, their identification and reduction.

432: Chemical Plant Design II. 0-2-2. Preq., senior standing in CMEN and CMEN 430. Comprehensive problems are assigned, the solution of which enables one to calculate dimensions and capacities of required plant equipment. Computer applications.

434: Chemical Plant Design III. 0-2-2. Preq., CMEN 432. CMEN 432 continued.

435: Polymer Engineering. 0-3-3. Polymer technology and processes including polymer structure, states, and transitions; kinetics of polymerization; molecular weight determination; viscous flow; mechanical properties; polymer degradation; analysis and identification. **(G)**

442: Process Optimization. 0-3-3. An objective study of the present status of optimization methodology as applied to the chemical process industries. Both deterministic and non-deterministic systems are considered. **(G)**

443: Air Pollution Control Design. 0-3-3. An overview of the air pollution problem. Design of devices to control emissions (VOC's, NOx, SO2, participates, etc.) Cost estimation of air pollution control systems. **(G)**

450: Special Problems. 1-4 semester hours credit. Problems covering selected topics of current importance or special interest or need. **(G)**

452: Special Projects Laboratory. 1 hour credit. Selected comprehensive problems. Study and/or laboratory development of: industrial unit operations; new chemical processes; improvement of established processes; economic evaluations. Theoretical studies.

453: Chemical Engineering Senior Laboratory. 4.5-1-2. Preq., CMEN 413. Laboratory study and report writing in reactor design and mass transfer operations.

455: Biochemical Engineering. 0-3-3. Preq., CMEN 402. Introduction to biotechnology and bioprocesses. Microbiology and biochemical processes are reviewed. Enzyme kinetics, microbial growth transport phenomena, and design of biochemical reactors are studied. Cross-listed with BIEN 455. **(G)**

456: Hazardous Waste Management. 0-3-3. A study of the legislation, regulation, technology, and business matters relating to hazardous waste management. **(G)**

475: Combustion, Fires and Explosions. 0-3-3. Nature of combustion, controlled and free burning fires, and evaluation of explosion hazards. **(G)**

501: Advanced Unit Operations. 0-3-3. Design calculations applicable to various unit operations including drying, humidification, absorption, adsorption, distillation, heat exchangers, ion exchange, cooling towers and filtration.

504: Advanced Chemical Engineering Kinetics. 0-3-3. Homogeneous reactions. Catalytic reactions. Mass and heat transfer in catalytic beds. Catalytic reactor design. Uncatalyzed heterogeneous reactions.

513: Transport Phenomena. 0-3-3. A course in which advanced concepts on momentum, energy, and mass transport is explored. Emphasis is placed on unsteady state behavior, turbulence, and recent developments in the literature.

521: Energy Analysis of Industrial Processes. 0-3-3. Preq., An undergraduate course in thermodynamics. The application of the concept of exergy, or energy availability, to the systematic analysis of processes and plants to make most efficient use of limited energy resources.

522: Advanced Thermodynamics. 0-3-3. The relations of thermodynamic properties are developed. Problems on the expansion and compression of nongases, liquefaction, low temperature separation are studied.

524: Seminar. 0-1-1 each. Surveys, investigations, and discussions of current problems in Chemical Engineering.

550: Special Problems. 1-4 semester hours. Preq., consent of instructor. Selected topics dealing with advanced problems in chemical engineering and design of equipment. The problems and projects will be treated by current methods used in professional practice.

551: Research and Thesis in Chemical Engineering. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

555: Practicum. 0-3-3 (6). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques. (Pass/Fail)

557: Special Topics: Chemical Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of chemical engineering. May be repeated as topics change.

CHEMISTRY (CHEM)

100: General Chemistry. 0-2-2. Preq., MATH 101. Fundamental principles of chemistry: Chemistry and measurement, atomic symbols and chemical formulas, stoichiometry, gases and thermochemistry. Master Course Articulation Matrix*

101: General Chemistry. 0-2-2. Preq., CHEM 100. Continuation of CHEM 100: Atomic and molecular structure, theories of molecular bonding, liquids, solids and solutions. Master Course Articulation Matrix*

102: General Chemistry. 0-2-2. Preq., CHEM 101. Continuation of CHEM 101: Rates of reaction, study of chemical equilibria including those involving acids, bases, sparingly soluble salts and complex ions, thermodynamics of equilibrium and introductory electrochemistry. Master Course Articulation Matrix*

103: General Chemistry Laboratory. 4 1/4-0-1. Coreq., CHEM 101. Laboratory practice in general chemistry. Master Course Articulation Matrix* [LCCN: CCEM 1121] or [LCCN: CCEM 1132]

104: General Chemistry Laboratory. 4 1/4-0-1. Preq., CHEM 103. Continuation of CHEM 103. Master Course Articulation Matrix* [LCCN: CCEM 1131] or [LCCN: CCEM 1132]

107: General Chemistry. 0-3-3. Preq., MATH 101. Fundamental principles of chemistry; chemistry and measurement, atomic symbols and chemical formulas, stoichiometry, gases and thermochemistry. Atomic and molecular structure, theories of molecular bonding. Master Course Articulation Matrix* . [LCCN: CCEM 1123]

108: General Chemistry. 0-3-3. Preq., CHEM 107. Continuation of CHEM 107. Liquids, solids, and solutions. Rates of reaction, study of chemical equilibria including those involving acids, bases, sparingly soluble salts and complex ions, thermodynamics of equilibrium and introductory electrochemistry. Master Course Articulation Matrix* [LCCN: CCEM 1133]

120: An Introduction to Inorganic Chemistry. 0-3-3. Topics covered will include scientific units, states of matter, the electronic structure of atoms, the chemical bond, solutions, reaction kinetics, acid-base theory, and buffers. Master Course Articulation Matrix* [LCCN: CCEM 1013] or [LCCN: CCEM 1103]

121: An Introduction to Organic Chemistry and Biochemistry. 0-3-3. Preq., CHEM 120 or 102. Survey of hydrocarbons and their derivatives; biomolecules including proteins, sugars, lipids, and nucleic acids. Not to be used as a prerequisite for advanced chemistry courses. Master Course Articulation Matrix* . [LCCN: CCEM 1113] or [LCCN: CCEM 2203]

122: Chemistry Laboratory. 4-0-1. Preq., CHEM 120. Basic laboratory experiments in inorganic, organic, and biochemistry. Master Course Articulation Matrix* [LCCN: CCEM 1101] or [LCCN: CCEM 1111]

205: Analytical Chemistry. 4 1/4-3-4. Preq., CHEM 102. Theory and practice of analytical Chemistry. Master Course Articulation Matrix* [LCCN: CCEM 2304]

250: Organic Chemistry. 0-2-2. Preq., CHEM 102. Introduction to organic chemistry with emphasis on structure and reactivity of aliphatic hydrocarbons and alkyl halides. Master Course Articulation Matrix* [LCCN: CCEM 2213]

251: Organic Chemistry. 0-2-2. Preq., CHEM 250; Coreq., CHEM 253. Continuation of CHEM 250 with emphasis on aromatic hydrocarbons, alcohols, aldehydes, ketones, and related reaction mechanisms and spectroscopy. Master Course Articulation Matrix* [LCCN: CCEM 2223]

252: Organic Chemistry. 0-2-2. Preq., CHEM 251; Coreq., CHEM 254. Continuation of CHEM 251 with emphasis on carbonyl compounds, aliphatic and aromatic amines, phenols, carbohydrates and related reaction mechanisms. Master Course Articulation Matrix* [LCCN: CCEM 2223]

253: Organic Chemistry Laboratory. 4 1/4-0-1. Preq., CHEM 102; Coreq., CHEM 251. Selected experiments emphasizing both laboratory operations and related basic principles and mechanisms. Master Course Articulation Matrix* [LCCN: CCEM 2211]

254: Organic Chemistry Laboratory. 4 1/4-0-1. Preq., CHEM 253; Coreq., CHEM 252. Introduction to multi-step organic syntheses and related reaction mechanisms. Master Course Articulation Matrix* [LCCN: CCEM 2221]

257: Organic Chemistry. 0-3-3. Preq., CHEM 102; Coreq., CHEM 253. Introduction to organic chemistry with emphasis on structure and reactivity of aliphatic hydrocarbons, alkyl halides, alcohols, and spectroscopy. Master Course Articulation Matrix*

258: Organic Chemistry. 0-3-3. Preq., CHEM 257; Coreq., CHEM 254. Continuation of CHEM 257 with emphasis on aromatic hydrocarbons, aldehydes, ketones, carboxylic acids and derivatives, aliphatic and aromatic amines, spectroscopy, and related reaction mechanisms. Statewide Transfer Agreetment Course*.

281: Inorganic Chemistry. 4 1/2-2-3. Preq., CHEM 102 and 104. Introduction to inorganic chemistry, including a systematic study of the periodic table with emphasis on structure, properties and reactivity of the elements of inorganic compounds.

311: Physical Chemistry. 0-3-3. Preq., CHEM 102 and 252, MATH 242 and PHYS 201. Basic theories of chemistry with emphasis on gases, chemical thermodynamics and phase equilibria.

312: Physical Chemistry. 0-3-3. Preq., CHEM 311. Basic theories of chemistry with emphasis on chemical kinetics, quantum theory, statistical thermodynamics and molecular spectroscopy.

313: Physical Chemistry Laboratory. 4 1/4-0-1. Coreq., CHEM 311. Laboratory experiments in physical chemistry.

314: Physical Chemistry Laboratory. 4 1/4-0-1. Preq., CHEM 311; Coreq., CHEM 312. Continuation of CHEM 313.

351: Biochemistry. 0-3-3. Preq., CHEM 252, 254. The chemistry of biologically important compounds including fats, carbohydrates, proteins, enzymes, vitamins, and hormones. Master Course Articulation Matrix* [LCCN: CBIO 3403]

352: Biochemistry. 0-3-3. Preq., CHEM 351. Intermediary metabolism and molecular biology of the gene. Master Course Articulation Matrix* [LCCN: CBIO 4413]

353: Biochemistry Laboratory. 4 1/4-0-1. Coreq., CHEM 351. Techniques applicable to current biochemistry with emphasis on basic research procedures. Master Course Articulation Matrix* [LCCN: CBIO 3401] or [LCCN: CBIO 4412]

354: Biochemistry Laboratory. 4 1/4-0-1. Preq., CHEM 351 and CHEM 353. Techniques applicable to current biochemistry with emphasis on metabolism and molecular biology. Master Course Articulation Matrix* [LCCN: CBIO 4411] or [LCCN: CBIO 4412]

390: Chemical Literature. 0-1-1 (2). A survey of chemical information sources and strategies for choosing appropriate sources to solve specific chemical information problems.

409: Advanced Organic Chemistry. 0-3-3. Preq., CHEM 312. Introduction to theoretical organic chemistry with emphasis on carbocation chemistry and pericyclic reactions.

420: Chemical Thermodynamics. 0-3-3. Preq., CHEM 312. An introduction to chemical thermodynamics.

424: Advanced Physical Chemistry. 0-3-3. CHEM 312 and MATH 245. A continuation of CHEM 311-312, including an introduction to quantum chemistry, and a quantum mechanical approach to the study of the structure of atoms and molecules.

450: Chemical Topics. 1-4 hour(s) credit (8). Preq., CHEM 312 and consent of instructor. An opportunity to observe and discuss topics of current interest in the chemical sciences. Offered on demand.

466: Instrumental Analysis. 8 1/2-2-4. Preq., CHEM 312. Theory and practice of optical methods of analysis, electrochemical techniques, and modern separation methods. **(G)**

481: Advanced Inorganic Chemistry. 4 1/2-2-3. Preq., CHEM 252, 312. An advanced study of the periodic classification of elements, their reactions, and other inorganic principles. **(G)**

490: Chemistry Seminar. 0-1-1 (3). Preq., Senior or graduate standing. Required of chemistry graduate students. Supervised organization and presentation of topics from the chemical literature. **(G)**

498: Undergraduate Research. 1-3 hours credit (6). Preq., consent of instructor. Introduction to methods of research and completion of a basic research problem.

501: Physical Organic Chemistry. 0-3-3. Preq., CHEM 409. An advanced study of the mechanisms of organic methodology used in their investigations, and organic quantum chemistry.

502: Selected Topics in Organic Chemistry. 0-3-3 (6). Preq., CHEM 409. Areas covered will vary; however they will generally include advanced organic synthesis and related structure identification with emphasis on spectroscopic techniques.

503: Topics in Chemistry. 1-3 hours credit (6). Independent study. Topics arranged to meet the needs of the student.

520: Molecular Spectroscopy. 0-3-3. Preq., CHEM 312. The relationship between molecular spectra and molecular structure.

523: Special Topics in Physical Chemistry. 0-3-3. Preq., CHEM 312. Topics will vary and will include kinetic theory of gases, molecular structure, phase rule, photochemistry, nuclear chemistry, chemical kinetics, or statistical thermodynamics.

524: Quantum Chemistry. 0-3-3. Preq., CHEM 312. Physical and chemical applications of quantum theory.

555: Special Topics in Biochemistry. 0-3-3 (9). Preq., CHEM 351. Topics covered will vary and may include toxicology and clinical biochemistry.

556: Protein Chemistry. 0-3-3. Preq., CHEM 351. The chemical nature and physiology of both structural and metabolic proteins.

563: Advanced Analytical Chemistry. 0-3-3. Preq., CHEM 466. Theoretical aspects of the optical, chemical, and separation techniques of analytical chemistry.

564: Selected Topics in Analytical Chemistry. 0-3-3. Selected topics in chemical separations or spectroscopy.

584: Chemistry of Coordination Compounds. 0-3-3. Preq., CHEM 481. A study of the structure, preparation, and properties of coordination compounds.

586: Special Topics in Inorganic Chemistry. 0-3-3. Preq. CHEM 584 or instructor's permission. A topic will be selected on a rotating basis from the following: magnetic and electric properties, solid state structures, catalysis, and group theory applications of inorganic materials.

CIVIL ENGINEERING (CVEN)

202: Civil Engineering Materials Laboratory. 4-0-1. Coreq., MEMT 201. Introduction to laboratory testing of aggregates, concrete, asphalt, steel, and other materials used by civil engineers.

254: Plane Surveying. 4-2-3. Preq., MATH 112 or 240 or placement in MATH 241. Theory, field measurements, and computation and error analysis associated with land, traverse, and topographic surveys.

300: The Civil Engineering Profession. 0-3-3. Preq., sophomore standing. Open only to civil engineering students. The civil engineering profession and its effect on society. History and heritage, current professional practices and techniques, concepts and challenges for the future.

310: Water Resources I. 0-3-3. Preq., MEMT 313. Hydrologic and hydraulic analysis of precipitation and runoff, storm water management, detention basin design, and flood frequency analysis.

314: Environmental Engineering. 3-2-3. Preq., ENGL 303, CHEM 102. Introduction to the unit operations and processes most often used in water and wastewater treatment.

324: An Introduction to Soils Engineering. 4-2-3. Preq., ENGL 303, MEMT 211. Introduction to soil mechanics, principles of geotechnical engineering. Presentation of soil properties, behaviors, characteristics pertinent to engineering problems/designs, soil classification, compaction, consolidation, shear strength.

325: Introduction to Foundation Engineering. 0-3-3. Preq., CVEN 324. Consideration of bearing capacity, settlement of structures, slope stability, foundation design requirements, subsurface exploration, regional soil conditions, footings, mats, and retaining walls.

332: Highway Engineering I. 0-3-3. Preq., ENGR 122. Introduction to highway engineering, planning, economic analysis of alternatives, traffic engineering, capacity analyses, traffic signal timing and progression, geometric design for at-grade intersections and interchanges.

333: Highway Engineering II. 3-2-3. Preq., CVEN 332. Design of culverts and ditches, construction contracts and plans, design pavements using suitable materials, and select procedures for construction and maintenance of pavements and rights-of-way.

340: Structural Analysis & Design. 3-2-3. Preq., MEMT 211. Analysis of simple and continuous structures using classical and matrix methods. Introduction to structural design concepts.

342: Steel Design. 0-2-2. Preq., CVEN 340. Fundamental elastic design of members and connections in elementary steel structures. Use of codes and specifications for steel design.

343: Reinforced Concrete Design. 0-3-3. Preq., CVEN 202 and 340. Principles underlying the design of integral parts of reinforced concrete structures: beams, girders, slabs, columns and footings. Use of codes and specification for reinforced concrete.

355: Advanced Surveying. 4-2-3. Preq., CVEN 254. Advance error propagation theory, including an introduction to least squares. Various horizontal/vertical high precision surveys; geodetic concepts and surveys; Global Positioning Systems.

357: Engineering and Construction Surveying. 4-1-2. Preq., CVEN 254. Horizontal/vertical curves; earthwork; topographic/planimetric surveys for map/drawing construction; engineering use of State Plane Coordinate System; surveys for buildings, pipelines, and others.

392: Numerical Methods in Civil Engineering. 3-1-2. Preq., MATH 245 and ENGR 122. Application of microcomputers to solve problems using numerical techniques and statistical applications. Use of application software to solve engineering problems.

411: Water Resources II. 3-2-3. Preq., CVEN 310. Computer modeling of precipitation and runoff, open channel hydraulics, flood profiles, pipe networks. Applications of modeling software for hydrologic and hydraulic design.

414: Bituminous Mixture Design. 3-2-3. Preq., senior standing. Selection of binders and aggregates for mixture design processes. Methods include Marshall, Hveem and SUPERPAVE. Laboratory mixes will be designated and tested. **(G)**

417: Groundwater Hydrology. 0-3-3. Preq., CVEN 310. Groundwater occurrence, movement and quality, well hydraulics, basin development, and model studies. **(G)**

421: Cementious Materials. 3-2-3. Production, testing, uses, and performance of Portland cement and Portland cement concrete. Recent advances in concrete technology included.

423: Introduction to Asphalt Technology. 3-2-3. Preq., senior standing. Production and uses of asphalt; measurement and significance of laboratory properties including viscosity, penetration, flash point, ductility, solubility, thin film oven test and specific gravity. **(G)**

425: Traffic Engineering. 0-3-3. Preq., CVEN 332. Traffic characteristics, vehicle operating characteristics, traffic control, and design of traffic facilities. Basic traffic studies, capacity, signing and signalization, speed regulation and parking. **(G)**

427: Design of Highway Pavements. 0-3-3. Preq., CVEN 324. Flexible and rigid pavement types. Factors affecting stresses and strains in pavement layers. Design criteria and structural design methods for highway pavements. **(G)**

435: Construction Contracts, Planning and Specifications. 0-3-3. Preq., INEN 300 or ENGR 122, and Junior Standing. Introduction to methods for planning and scheduling construction projects and specifications. Team efforts on problems and case studies.

436: Construction Equipment and Methods. 0-3-3. Preq., Junior standing, and ENGR 122 or INEN 300. Study of economics and functional applications of construction equipment. Operation characteristics are identified for selected equipment items, and are applied to typical construction situations. **(G)**

437: Contracts and Specifications. 0-3-3. Preq., CVEN 439. In-depth study of legal documents of construction contracts. Modern techniques for scheduling construction projects.

438: Estimating. 0-3-3. Preq., CVEN 254 and junior standing. Types of estimates. Material takeoff from blueprints and specifications. Detailed estimates of labor and materials. Approximate estimates. **(G)**

439: Construction Planning, Contracts and Specifications. 0-2-2. Preq., INEN 300 or ENGR 122, and junior standing. Introduction to methods for planning and scheduling construction projects and specifications. Team efforts on problems and case studies.

440: Foundation Engineering. 0-3-3. Preq., CVEN 325 or consent of instructor. Theory and applications in foundation engineering design; application of soil mechanics. **(G)**

442: Sustainable Construction. 0-3-3. Preq., Junior Standing. Introduction to the construction of high performance buildings, use of design standards to realize the ecological and economic benefits of sustainable projects. **(G)**

450: Special Problems. 1-4 hours credit. Preq., senior standing and consent of instructor. Planning, organization, and solution of problems in Civil Engineering.

455: Sustainability of Above Ground Structures. 0-3-3. Preq., Junior Standing. Risk, safety and liability in achieving sustainability of structures; condition assessment, causes of distress and deterioration of structures. **(G)**

456: Legal Aspects of Boundary Surveying. 0-3-3. Preq., CVEN 254. Legal aspects of various boundary systems. Legal principles of boundary surveys: common statute law, written/unwritten rights and rules of evidence, property descriptions/layout.

457: Practical Surveying. 40-0-3. Preq., CVEN 355, 357, or 456. An on-the-job training program; student is employed by registered professional surveyor for 300 working hours (minimum); work to be approved by program chair.

459: Introduction to Infrastructure Management. 0-3-3. Preq., junior standing. Lifecycle approach to planning, designing, and managing infrastructure (highways, streets, utilities); infrastructure decision support systems; performance measures and prediction; computer applications; case studies. **(G)**

460: Principles of Infrastructure Management. 0-2-2. Preq., Junior Standing. Basic concepts in infrastructure management, engineering economics, public policy; private-public-partnership; decision support systems; computer applications; case studies.

464: Advanced Design of Concrete Structures. 0-3-3. Preq., CVEN 343. Advanced topics in the design of reinforced and prestressed concrete structures. **(G)**

466: Advanced Structural Design. 0-3-3. Preq., CVEN 342. Advanced topics in the design of steel and timber structures. Load and resistance factor design. **(G)**

470: Sustainability with Steel Structures. 0-3-3. Preq., CVEN 342. Use of codes and specifications for advanced design of sustainable steel structures. **(G)**

475: Sustainability with Concrete Structures. 0-3-3. Preq., CVEN 343. Use of codes and specifications for advanced design of sustainable reinforced concrete structures. **(G)**

480: Introduction to Trenchless Technology. 0-3-3. Preq., CVTE 210 or MEMT 313. Basic technologies, design considerations and construction practices for underground infrastructure construction and rehabilitation with minimal ground surface disturbance.

492: Civil Engineering Design I. 3-0-1. Preq., four out of the five courses: CVEN 254, CVEN 310, CVEN 324, CVEN 332, and CVEN 340. Open-ended design problems typical of those encountered in the Civil Engineering profession and calling for the integration of geotechnical, structures, transportation and water resources.

493: Civil Engineering Design II. 3-0-1. Preq., CVEN 492. A continuation of CVEN 492.

494: Civil Engineering Design III. 3-0-1. Preq., CVEN 493. A continuation of CVEN 493.

502: Infrastructure Management. 4-2-3. Preq., CVEN 332 or consent of instructor. Condition assessment and rating, data storage and management, performance prediction, and repair prioritizations of infrastructure networks. Infrastructure management systems.

503: Urban Hydrosystems Engineering. 4-2-3. Preq., consent of instructor. Principles of drainage, culvert design/analysis, detention basin design, roadway drainage, pump stations – course content based on Urban Drainage Design Manual.

504: Water and Wastewater Treatment. 4-2-3. Preq., consent of instructor. In depth coverage of processes used in the treatment of waste and the production of potable water.

505: Buried Structures – Rehabilitation and Management. 4-2-3. Preq., MEMT 201 and CVEN 324 or consent of instructor. Deterioration mechanisms, evaluation, rehabilitation and repair methods, and construction aspects of buried infrastructure systems including pipes, tunnels, and chambers.

506: Above Ground Structures: Assessment and Rehabilitation. 4-2-3. Preq., MEMT 201, CVEN 342, and CVEN 343 or consent of instructor. Deterioration mechanisms, non-destructive testing methods, rehabilitation/rehabilitation methods and techniques of above ground structures, including bridges, pavements, and buildings.

507: Process Dynamics in Environmental Systems. 0-3-3. Preq., CVEN 314 or consent of instructor. Basic physical and chemical principles used to quantify, analyze, and design systems for treating water, wastewater, and industrial waste. Effects of contaminants on natural systems.

510: Advanced Soil Mechanics. 0-3-3. Preq., CVEN 324. Evaluation of subsoil conditions, theory of consolidation and bearing capacity of soils; selection application and design of foundation elements of structures.

514: Bituminous Mixture Design. 3-2-3.. Selection of binders and aggregates for mixture design processes. Methods include Marshall, Hveem and SUPERPAVE. Laboratory mixes will be designed and tested.

515: Advanced Cementious Materials. 3-2-3. Production, testing, uses, and performance of Portland cement and Portland cement concrete. Recent advances in concrete technology included.

519: Techniques for Pavement Rehabilitation. 0-3-3. Evaluation of roadway distress, roughness, friction, drainage and structural surveys will be discussed. Survey results used to identify cost-effective techniques for pavement rehabilitation.

527: Statistical Methods in Hydrology. 0-3-3. Preq., CVEN 310. Frequency analysis, extreme value distribution, error analysis, and multiple regression analysis associated with making engineering decisions using hydrologic data.

531: Contaminant Transport. 0-3-3. Preq., CVEN 310, 314. Mathematical modeling of contaminant transport in surface and ground water systems.

550: Special Problems. 1-4 hours credit. Advanced problems in Civil Engineering will be assigned according to the ability and requirements of the student. An opportunity will be afforded to plan, organize, and complete solutions in problems of considerable magnitude with a view toward developing confidence and self-reliance.

551: Research and Thesis in Civil Engineering. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

555: Research and Communications Seminar. 0-3-3. Preq., 12 semester hours of graduate work. Oral and written communication of literature search.

557: Special Topics: Civil Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of civil engineering. May be repeated as topics change.

580: Trenchless Technology. 0-3-3. Preq., MEMT 313 and CVEN 324. Survey of trenchless technologies, underground infrastructure management, cured-in-place, slip lining and fold and form rehabilitation, horizontal directional drilling, pipe jacking and microtunneling. Credit will not be given for both CVEN 480 and 580.

599: Graduate Seminar. 0-1-1. Issues in graduate education. Presentations of current topics in research, teaching and practice. May be repeated for credit. (Pass/Fail).

CIVIL TECHNOLOGY (CVTE)

100: Introduction to Construction. 3-2-3. Preq., MATH 112. An introduction to the construction industry, the work of professional construction managers and technologies, the curriculum, and the reading of building and highway plans.

210: Basic Hydraulics. 4-2-3. Preq., MEMT 206. Physical phenomena of hydraulics with application of the fundamental laws and empirical formulae. Pressure forces on submerged areas, buoyancy, flow in closed conduits and open channels and fluid measurements.

255: Computer Applications in Surveying. 3-3-3. Preq., CVEN 254. Computer-aided drafting and geometric construction tools, basic knowledge of GIS theory in combination with GPS applications for land surveying, construction layout and site preparations.

274: Computer Applications in Construction. 2-1-1. Development of fundamental skills in practical problems in software applications associated with project scheduling, planning and estimating for heavy civil construction.

372: Structural Mechanics and Analysis. 0-3-3. Preq. MEMT 206 and MATH 220. Theory of the mechanics of structural analysis and design. Not open to Civil Engineering majors.

373: Construction Materials. 4-2-3. Preq., ENGL 303 and MEMT 206. Mechanical behavior of engineering materials, determination of strength and other properties of materials, and construction applications.

424: Seminar. 3-0-1. Preq., senior status. Reading and discussion of assigned papers, presentation of current issues in construction, and discussions with professional construction personnel.

471: Reinforced Concrete, Foundations, and Formwork. 0-3-3. Preq., CVTE 372. Analysis and design of reinforced concrete structures, slabs, and footings. Design and selection of formwork and shoring.

473: Design of Structures. 3-2-3. Preq., CVTE 372. Design of elementary structures in timber and steel.

475: Soils in Construction. 0-3-3. Preq., MEMT 206. The nature of soils, earthwork in construction and soils testing methods.

492: Construction Project Bid Planning. 6-0-2. Preq., CVEN 436, CVEN 438, CVEN 439, CVTE 475 and within three quarters of graduation. Capstone construction experience that includes planning the sequence of construction operations, creating a bill of materials, and estimating the cost of a small construction project by student teams.

493: Capstone for Construction Project. 6-0-3. Preq., CVEN 436, CVEN 438, CVEN 439, CVTE 475 and within three quarters of graduation. Capstone experience including planning the sequence of construction operations, creating a bill of materials, meeting professional construction personnel, estimating cost of a project by teams.

CLINICAL LABORATORY SCIENCE (CLAB)

450: Pathophysiology. 0-3-3. A case history approach is taken in the correlation of laboratory data with clinical observation to diagnose disease.

457: Professional Practices. 0-2-2. Healthcare administration, educational techniques, career opportunities/ development, QA/QA, ethics, interview techniques, plus credentialing and accreditation in medical technology are discussed.

460: Clinical Hematology. 2-6 semester credit hours. Preq., consent of instructor. Advanced concepts in the theory, application and medical interpretation of hematological and hemostatic mechanisms and methods.

461: Clinical Hematology Laboratory. 1-5 semester credit hours. Preq., consent of instructor. Instruction and laboratory practice in the development and use of advanced analytical procedures and instrumentation in clinical hematology and hemostasis.

462: Clinical Serology and Immunology. 1-4 semester credit hours. Preq., consent of instructor. Advanced concepts in the theory, application and medical interpretation of serological and immunological mechanisms and methods.

463: Clinical Serology and Immunology Laboratory. 1-4 semester hours credit. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of serological and immunological procedures.

464: Clinical Bacteriology. 2-5 semester credit hours. Preq., consent of the instructor. Advanced concepts in the use and interpretation of medical bacteriological procedures and data.

465: Clinical Bacteriology Laboratory. 3-7 semester credit hours. Preq., consent of the instructor. Instruction and laboratory practice in the development and use of advanced analytical procedures and instrumentation in clinical bacteriology.

466: Clinical Immunohematology. 1-4 semester credit hours. Preq., consent of the instructor. An advanced study of the principles of immunohematology necessary to provide a patient with a safe blood transfusion.

467: Clinical Immunohematology Laboratory. 1-5 semester credit hours. Preq., consent of instructor. Practical instruction and laboratory practice in immunohematological procedures utilized in a hospital blood bank.

468: Clinical Chemistry and Toxicology. 3-6 semester credit hours. Preq., consent of the instructor. Advanced concepts in the theory application, and medical interpretation of clinical biochemical mechanisms and methods.

474: Clinical Urinalysis. 1-3 semester credit hours. Preq., consent of instructor. Advanced concepts in the use and interpretation of urinalysis procedures and data.

475: Clinical Urinalysis Laboratory. 1-3 semester credit hours. Preq., consent of instructor. Practical instruction and laboratory practice in the performance of urinalysis procedures.

476: Clinical Parasitology, Mycology and Mycobacteriology. 1-2 semester credit hours. Preq., consent of instructor. Advanced concepts in the use and interpretation of procedures and data in clinical parasitology, mycology, and mycobacteriology.

477: Clinical Parasitology, Mycology and Mycobacteriology Laboratory. 1-2 semester credit hours. Preq., consent of instructor. Instruction in laboratory practice in the development and use of advanced analytical procedures in clinical mycology, parasitology, and mycobacteriology.

478: Clinical Laboratory Administration. 1-3 semester credit hours. Preq., consent of instructor. Modern management concepts for the clinical laboratory.

480: Clinical Medical Technology Problems. 1-8 semester credit hours. Preq., consent of instructor. An introduction to emerging medical technologies.

483: Clinical Parasitology. 1-2 semester credit hours. Identification, clinical significance, and methods of prevention of parasitic infections.

484: Clinical Parasitology Laboratory. 1-2 semester credit hours. Instruction and laboratory practice in the development and application of medical parasitology laboratory methods.

485: Clinical Mycology. 1-2 semester credit hours. Identification, clinical significance and methods of prevention of mycotic infection.

486: Clinical Phlebotomy and Specimen Procurement. 1-3 semester credit hours. Preq., consent of instructor. Instruction and laboratory practice in phlebotomy and the collection of other specimens for clinical analysis. Specimen preservation and safe lab practices are included.

489: Clinical Chemistry and Toxicology Laboratory. 3-8 semester hours credit. Practical instruction and laboratory practice in clinical chemistry procedures, including associated instrumental analysis.

COMMUNICATION (COMM)

101: Introduction to Communication Studies. 0-3-3. Preq., Permission of Department Head. Freshman/Sophomore classification only. Introduction to basic human communication including interpersonal, small group, organizational and intercultural with an additional focus on managing personal communication and understanding communication media.

110: Fundamentals of Public Speaking. 0-3-3. Designed to teach strategies in researching, preparing and extemporaneously delivering oral presentations in typical speaker-audience situations through application in informative and persuasive speaking. Master Course Articulation Matrix* [LCCN: CCOM 1013]

200: Introduction to Basic Web Design & Online Media. 0-3-3. Basic concepts, nomenclature, software, and processes used in the design and creation of websites. Includes introduction to HTML and optimization issues.

201: Introduction to Digital Photography. 0-3-3. An introduction to photography using digital cameras, image software and digital printers.

202: Media Literacy. 0-3-3. Introduction to the world of media, arts, and society with emphasis on critical consumption.

203: Interpersonal Communication. 0-3-3. Study of the verbal and nonverbal dimensions of interpersonal relationships including dialogues, interviews, and dyadic systems. Master Course Articulation Matrix* [LCCN: CCOM 2213]

204: Communication Training & Development. 0-3-3. Critical analysis and practical application of the intersection between communication studies and the development of training initiatives.

211: Advanced Public Speaking. 0-3-3. Preq., COMM 110 or permission of instructor. This course is centered on developing advanced skills in a greater variety of public speaking situations: manuscript, after dinner speaking, and impromptu. Master Course Articulation Matrix* [LCCN: CCOM 2013]

300: Argumentation. 0-3-3. A study of the principles of group discussion and debate with practical experience in each. Master Course Articulation Matrix*

303: Intercultural Communication. 0-3-3. Explores communication across cultures with emphasis on nonverbal messages. Examines the current theories and strategies for more effective and culturally aware communication.

306: Applied Forensics. 3-0-1 (9). Practical experience in debate and other forms of forensic speaking. May be repeated for a maximum of 9 hours credit.

315: Survey of Rhetoric. 0-3-3. Understanding contemporary rhetorical issues through narrowed specific themes. Students will develop critical thought within the context of the themes explored.

325: Introduction to Communication Research Methods. 0-3-3. A study of the goals and methods of research with emphasis on understanding the nature and structure of communication.

377: Business and Professional Speaking. 0-3-3. Designed to establish a foundation for effective organizational communication including interviewing skills, working in small groups and extemporaneously delivering informative and persuasive presentations. (Cannot be taken for credit if student has credit for COMM 110.)

390: Special Topics in the Science of Communication. 0-3-3. This course is concerned with developing advanced social scientific knowledge in communication studies areas such as Conflict & Negotiation Resolution, Persuasion, and Interpersonal Communication.

395: Special Topics in the Rhetoric of Communication. 0-3-3. This course is concerned with developing advanced knowledge in rhetorical analysis in areas such as Popular Culture, Visual Rhetoric, and American Rhetorical Traditions.

417: Seminar in Communication Studies. 0-3-3. Selected current issues/topics in an identified area of theory or application within the field of Communication Studies.

431: Organizational Communications. 0-3-3. Focuses on the factors related to communication processes within government, private, and volunteer organizations.

433: Applied Organizational Communication. 0-3-3. Application of communication practices in organizational settings including the practical considerations that arise in conducting communication surveys.

439: Rhetorical Criticism. 0-3-3. Rhetorical approaches to the criticism of public communication. Intensive practice in writing rhetorical analyses will be provided. **(G)**

455: Communication Theory. 0-3-3. An examination and synthesis of theoretical approaches to contemporary communication theory with special emphasis on interpersonal contexts.

466: Group Processes. 0-3-3. Theory and practice of conducting group meetings, group discussions, to include parliamentary procedure.

COMPUTATIONAL ANALYSIS & MODELING (CAM)

610: Doctoral Seminar in Computational Analysis & Modeling. 0-3-3. (Pass/Fail). Required for PhD Computational Anaylsis and Modeling students each Fall. The seminar will cover research methodology, issues in graduate education, and presentations on current research by faculty, doctoral students, and distinguished visitors. Only 3 semester hours will apply toward the candidates plan of study.

650: Directed Study in Computational Analysis and Modeling. 1-3 hours of credit (6). Directed in-depth study of a highly specialized topic. Topics and course policies to be established by instructor for each student.

651: Research and Dissertation. (Pass/Fail). Doctoral students only. Registration in any quarter is for 3 semester hours or multiples thereof, up to a maximum of 9 semester hours per quarter. Maximun credit applicable towards the degree is 30 semester hours.

657: Selected Topics in Computational Anaylsis and Modeling. 0-3-3. Lectures to be selected by the instructor on topics related to scientific computation and mathematical modeling.

685: Doctoral Qualifying Exam – Mathematics. No credit. (Pass/Fail). Required for all students seeking to take the mathematics qualifying examination for the PhD in Computational Analysis and Modeling. Successful completion is a prerequisite for admission to candidacy.

686: Doctoral Qualifying Exam – Computer Science. No credit. (Pass/Fail). Required for all students seeking to take the computer science qualifying examination for the PhD in Computational Anaylsis and Modeling. Successful completion is a prerequisite for admission to candidacy.

COMPUTER INFORMATION SYSTEMS (CIS)

110: Computer Tools for Business. 1-2-3. The development and enhancement of computer skills and knowledge using current business software. Master Course Articulation Matrix* [LCCN: CBUS 2203]

310: Principles of Information Systems. 0-3-3. Preq., CIS 110, junior standing. Introduction to concepts and principles of information system resources, analysis, development, management, and applications. Master Course Articulation Matrix* [LCCN: CBUS 3013]

315: Problem Solving and Introduction to Programming. 0-3-3. Preq., CIS 110. An introduction to programming concepts and principles (structures, algorithms, and problem solving) and hardware fundamentals.

323: Database System Management. 0-3-3. Preq., CIS 315. Managing and communicating the data resource using database principles and user-oriented data languages.

325: Enterprise Systems and Integration. 0-3-3. Key enterprise systems concepts from functional, technical, and implementation perspectives with emphases on process-centered organizations and designing systems to support cross-functional businesses.

335: Application Development for the Internet. 0-3-3. Preq., CIS 315 and 323. Programming for Internet-based applications for business students. Emphasizes object-oriented programming and database usage.

337: Business Applications Development: Current Programming Techniques. 0-3-3. Preq., CIS 335. Advanced business application development, using current programming methodology.

401: Internship in CIS I. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

402: Internship in CIS II. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

405: Business Analytics. 0-3-3. Preq., QA 233. Fundamentals of Business Analytics will be examined. Topics will include problem definition, data preparation, and the use of analytic techniques to solve business problems.

421: Introduction to Information System Assurance. 0-3-3. This course examines basic enterprise information systems assurance principles and examines operational, technical, and administrative aspects of information assurance.

422: Incident Response and Computer Forensics. 0-3-3. Preq., CIS 421. Prepares students to collect, examine, and preserve digital evidence; and examines techniques used to prepare for, respond to, and investigate computing incidents.

423: Disaster Recovery and Business Continuity. 0-3-3. Preq., CIS 421. Presents principles of disaster recovery and business continuity planning, and examines countermeasures that may be used to prevent system failure for an organization.

424: Information Systems Assurance Risk Analysis. 0-3-3. Preq., CIS 421. Presents the organizational issues of risk analysis including reliability, safety, security, and privacy. Methods for risk assessment and security evaluations are examined.

425: Principles of Cryptography. 0-3-3. Preq., CIS 421 or consent of instructor. This course examines basic cryptography principles and specific mechanisms including encryption, hashes, message authentication codes, digital signatures, digital certificates and network defense.

444: Network Design & Implementation. 0-3-3. Preq., CIS 110. Issues of designing, implementing, and managing computer networks, including both Local Area Networks (LANs) and Wide Area Networks (WANs).

449: Information Technology Project Management. 0-3-3. Preq., Junior standing. A senior-level course designed to prepare students to lead and contribute to successful information technology projects.

450: Systems Analysis, Design, & Implementation. 0-3-3. Preq., CIS 315, 323, and 335. An in-depth life cycle approach to information systems analysis, design, and implementation.

460: Trends in Computer Information Systems. 0-3-3. Preq., Consent of Instructor. Seminar on current topics in Computer Information Systems. Course content would change with the topic covered in a specific quarter.

485: International Information Systems. 0-3-3. Preq., CIS 310 or Consent of Instructor. An examination of information technology (IT) in international organizations. Topics include global networking and service levels, outsourcing, country diversity, the international IT environment and policy.

494: Principles of Information Systems. 0-0-3. Self-paced course in information systems sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail)

510: Information Resource Management. 0-3-3. Attention is given to strategic implementation of technology, secure and effective systems, externally focused systems, along with the historical and social environment of information systems.

521: Introduction to Information System Assurance. 0-3-3. This course examines basic enterprise information systems assurance principles and examines operational, technical and administrative aspects of information assurance.

522: Incident Response and Computer Forensics. 0-3-3. Prepares students to collect, examine, and preserve digital evidence; and examines techniques used to prepare for, respond to, and investigate computing incidents.

523: Disaster Recovery and Business Continuity. 0-3-3. Presents principles of disaster recovery and business continuity planning, and examines countermeasures that may be used to prevent system failure for an organization.

524: Information Systems Assurance Risk Analysis. 0-3-3. Presents the organizational issues of risk analysis including reliability, safety, security, and privacy. Methods for risk assessment and security evaluations are examined.

525: Principles of Cryptography. 0-3-3. This course examines basic cryptography principles such as encryption, hashes, message authentication codes, digital signatures, digital certificates and network defense.

544: Network Design and Implementation. 0-3-3. The course focuses upon the OSI Model Layers 3-7. The course will introduce students to a variety of networking topics.

547: Systems Integration and ERP. 0-3-3. Features and capabilities of enterprise systems, the methodologies used to implement these systems in organizations, and the implications of their deployment in organizations. Cross listed with CIS 647.

548: Electronic Commerce. 0-3-3. Theory and applications of electronic commerce (EC) including business models, intermediation, Internet technology, security, legal issues, ethical issues, social issues, and international issues. Cross listed with CIS 648.

549: Information Technology Project Management. 0-3-3. This course is designed to prepare students to manage information technology projects. Topics include requirements definition, developing a business case, scheduling, systems design and deployment.

550: Directed Study in Computer Information Systems. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of computer information systems.

603: Advanced Seminar in Research. 0-3-3 (6). Requires Doctoral standing or special permission from instructor. May be repeated once for credit. The seminar will cover research methods and current trends in research. Critical evaluation of research is required.

604: Preparing Publishable Research. 1-3 hours. Requires Doctoral standing. Integration of literature, methods, and statistics in information systems. Students work independently with faculty to develop research papers for publication. Oral presentation of research required.

640: Topics in Information Technology Management. 0-3-3. (9). Preq., CIS 310 or equivalent. Requires doctoral standing. May require additional class meetings. Leading edge Information Technology management issues will be addressed: virtual teams, knowledge management, business process change, outsourcing, and evolving IT management roles. Course may be repeated for up to 9 hours credit with change of title/subject matter. Cross listed with CIS 540.

641: Advanced Database Management. 0-3-3. Requires doctoral standing. Theoretical , applied, and organizational issues for large, complex database management systems including logical and physical database design, architecture considerations, emerging database technologies, and advanced applications.

642: Advanced Systems Analysis and Design. 0-3-3. Requires doctoral standing. Systems Development Life Cycle methodology choices and project deliverables for both structured and object oriented approaches, effective project management, and systems development research issues.

643: Advanced Data Communications. 0-3-3. Requires doctoral standing. Theory and applications of data communications including telecommunications technology concepts, trends, and issues.

645: Seminar in IS research. 0-3-3. Requires doctoral standing. Study of the seminal research in information systems, significant subsequent research, dominant theories and frameworks, and current research opportunities.

646: Seminar in IS Research II. 0-3-3. Requires doctoral standing. Designing, conducting, and evaluating research on information systems phenomena. Topics include methodological choices for IS research., critical evaluation of research, and the publication process.

647: Systems Integration and ERP. 0-3-3. Requires doctoral standing. May require additional class meetings. Features and capabilities of enterprise systems, the methodologies used to implement these systems in organizations, and the implications of their deployment in organizations. Cross listed with CIS 547.

648: Electronic Commerce. 0-3-3. Requires doctoral standing. May require additional class meetings. Theory and applications of electronic commerce (EC) including business models, intermediation, Internet technology, security, legal issues, ethical issues, social issues, and international issues. Cross listed with CIS 548.

650: Directed Study in Computer Information Systems. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of computer information systems.

685: Comprehensive Exam in Computer Information Systems. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in CIS. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in CIS. Requires consent of graduate director.

COMPUTER SCIENCE (CSC)

100: Overview of Computer Science. 0-3-3. Preq., MATH 101 or equivalent. An overview of the field of computing, applications, algorithms, data structures, rudimentary programming, machine architecture, digital logic, history, impact, and current trends.

120: Introduction to Computer Programming. 0-3-3. Preq., CSC 100. Introductory programming using an objects-first approach. Problem analysis and solution. Introductory modeling and abstraction. Documentation, good programming practices. Data and control structures as needed. Credit will not be given for CSC 120 if credit is given for CYEN 120.

121: Introduction to Computing and Programming. 0-3-3. Preq., MATH 101 or equivalent. An introduction to computer programming using an objects first approach; problem solving; an overview of the field of computing.

122: Intermediate Computer Programming. 0-3-3. Preq., CSC 120. Analysis, design and implementation of programs. Application structures, algorithm development, event-driven programming, graphical user interfaces, exception handling, recursion. More complete coverage of programming language features.

130: The Science of Computing I. 0-3-3. Preq., MATH 101 or equivalent. An introduction to computing, introductory programming using an objects-first approach, problem analysis and solution, basic algorithm development. This is the first Living with Cyber course. Credit will not be given for CSC 130 if credit is given for CYEN 130.

131: The Science of Computing II. 0-3-3. Preq., CSC 130 or CYEN 130. Analysis, design, and implementation of programs; intermediate algorithm development; more coverage of programming language features. This is the second Living with Cyber course. Credit will not be given for CSC 131 if credit is given for CYEN 131.

132: The Science of Computing III. 0-3-3. Preq., CSC 131 or CYEN 131, or consent of instructor. Introduction to computer graphics and graphical user interfaces; algorithm development; more coverage of programming language features; recursion. This is the third Living with Cyber course. Credit will not be give for CSC 132 if credit is given for CYEN 132.

210: Discrete Mathematics for Computer Scientists. 0-3-3. Preq., CSC 120 and MATH 241. An overview of the mathematical foundations of computing. Topics include sets, symbolic logic, relations, functions, combinatorics, induction, trees, graphs, and Boolean algebra.

220: Data Structures. 0-3-3. Preq., CSC 122 or CYEN 122 and Preq. or Coreq., MATH 240. The definition, representation, and manipulation of basic data structures such as arrays, stacks, queues, trees, and graphs. Practical applications of these structures will be emphasized.

222: Systems Programming. 0-3-3. Preq., CSC 122 or CYEN 122 and Preq. or Coreq., MATH 240. An introduction to systems programming within the context of C/C++ and Linux; topics include linking, writing scripts, performing system calls, managing memory, and using concurrency.

230: Software Design. 0-3-3. Preq., CSC 220. Design, construction and maintenance of large software systems. Topics include project planning, requirements analysis, software design methodologies, software implementation and testing, maintenance.

251: Computer Organization & Assembly Language. 0-3-3. Preq., CSC 220. Introduction to computer organization and operation, data representation and manipulation, assembly language programming, register level operations, peripheral device interfaces.

265: Introduction to Digital Design. 3-2-3. Preq., CSC 100. Introduction to digital design techniques, Boolean algebra, combinational logic, minimization techniques, simple arithmetic circuits, programmable logic, sequential circuit design, registers and counters.

269: Digital Design Lab. 3-0-1. Coreq., CSC 265. Laboratory for digital design techniques, combinational and sequential logic design, registers and counters.

299: Cooperative Education Applications. 40-0-1 (7). Preq., Admission to the College of Engineering and Science Cooperative Education Program. Pass/Fail.

310: Theory of Computing. 0-3-3. Preq., CSC 220 and MATH 311. An overview of formal languages, the abstract models of computing capable of recognizing those languages, and the grammars used to generate them.

325: Advanced Data Structures and Algorithms. 0-3-3. Preq., CSC 220 and Preq. or Coreq., MATH 311. Advanced data structures and algorithm design. Topics include specialized trees, graphs, sets and tables, advanced searching and sorting, complexity analysis, and algorithm design techniques.

330: Programming Languages. 0-3-3. Preq., CSC 325. Techniques for specifying the syntax and semantics of programming languages. Language concepts; execution environments; comparative analysis of programming languages.

345: Operating Systems. 0-3-3. Preq., CSC 222. An introduction to operating systems concepts. Topics include process management, storage management, device management, performance, security, and case studies of common operating systems.

364: Computer Architecture. 0-3-3. Preq., CSC 265 or ELEN 232. Architecture and organization of computer systems. Topics include the processor, control unit and microprogramming, computer arithmetic, memory hierarchy and memory management, input/output, instruction sets.

403: Software Design and Engineering. 0-3-3. Preq., CSC 325 and senior standing. Design, construction and maintenance of large software systems. Project planning, requirements analysis, software design methodologies, software implementation and testing, maintenance.

404: Senior Capstone. 0-3-3. Preq., CSC 403. This course provides a forum for discussion of the social, legal, and ethical aspects of computing. Communication skills will be emphasized through professional presentations and a significant senior design project.

418: Computer Architecture and Operating Systems. 0-3-3. Preq., consent of instructor. Computer organization, and hardware design, digital logic, CPU structure, control unit, memory, and input/output; operating systems, process, scheduling, memory management, and file-system interface. **(G)**

419: Special Topics in Theory of Computing. 0-3-3. Preq., consent of instructor. Selected topics in the area of computing theory that are of current importance or special interest.

420: Design and Analysis of Algorithms. 0-3-3. Preq., CSC 325. Design and analysis of efficient algorithms. Topics include complex data structures, advanced searching and sorting, algorithm design techniques, and complexity analysis.

425: Discrete Mathematics, Data Structures and Algorithms. 0-4-4. Preq., Consent of instructor (cannot be applied for credit toward any Computer Science degree). Mathematical foundations of computer science; definition, application and implementation of abstract data types; algorithm design and analysis techniques. **(G)**

428: Object Oriented Programming and Data Structures. 0-3-3. Preq., consent of instructor. Programming paradigms, syntax, semantics, data types, expression, control statements, and subprograms; object oriented concepts, abstract data types, recursion, queues, and trees. Cannot be applied for credit toward any Computer Science degree. **(G)**

429: Special Topics in Software Development. 0-3-3. Preq., consent of instructor. Selected topics in the area of software design that are of current importance or special interest.

430: Database Management Systems. 0-3-3. Preq., CSC 220. Database concepts, models and applications; database management systems; implementation of a practical database.

436: Compiler Design. 0-3-3. Preq., CSC 310, 330. Principles of compiler design; assembler design; lexical analysis; syntax analysis; automatic parser generations; error detection and recovery. **(G)**

437: Programming Language Paradigms and Software Development. 0-4-4. Preq., CSC 425 and consent of instructor (cannot be applied for credit toward any Computer Science degree). Imperative, functional, logical and object-oriented paradigms; programming language semantics and language translation; specification, design, implementation, validation, and maintenance of large software systems. **(G)**

438: Advanced Data Structures and Algorithm Design. (0-3-3). Preq., consent of instructor. Algorithm analysis and design, sorting algorithms, hashing, search trees, disjoint sets, graph algorithms, divide and conquer, greedy algorithms, dynamic programming, backtracking, and NP completeness. Cannot be applied for credit toward any Computer Science degree. **(G)**

439: Special Topics in Programming Environments. 0-3-3. Preq., consent of instructor. Selected topics in the area of programming environments that are of current importance or special interest.

442: Introduction to Cyber Security. 0-3-3. Preq., CSC 220 and consent of instructor. Overview of cyber security; provides students with practical cyber security experience based on theoretical foundations. Topics include: computer network defense, computer network attack, wireless security.

443: Digital Forensics and Cyber Crime. 0-3-3. Preq., CSC 442 or consent of instructor. Overview of computer crime and methods to uncover, protect and exploit digital evidence. Topics include: cyber crime, network-based forensics, forensics analysis techniques, mobile device forensics. Credit will not be given for CSC 443 if credit is given for CYEN 401.

444: Applied Cryptography. 0-3-3. Preq., CSC 442 or consent of instructor. An introduction to the basic theory and practice of cryptographic techniques used in computer security. Topics include encryption, key management, hashing, network security protocols. Credit will not be given for CSC 444 if credit is given for CYEN 406.

445: Architecture and Operating Systems; Parallel Computing. 0-4-4. Preq., CSC 425 and consent of instructor (cannot be applied for credit toward any Computer Science degree). Digital logic, instruction set architectures, microprocessor design; storage management, process synchronization and communications, device management; introduction to parallel architectures, languages and algorithms. **(G)**

446: Access Control Logic and Covert Channels. Preq., CSC 442 and MATH 311. An overview of access control logic and covert channels. Topics include access control concepts and logic, covert channel detection, future security predictions, steganography, steganalysis, data hiding.

447: Wireless and Mobile Security. 0-3-3. Preq., CSC 442. Overview of wireless and mobile security providing students with practical and theoretical experiences. Topics include threat analysis, security infrastructure, security services, wireless network security components.

448: Reverse Engineering. 0-3-3. Preq., CSC 442 or consent of instructor. Overview of reverse engineering techniques, modern tools for reverse engineering of machine code. Topics include gathering information, PE32 format, obfuscation techniques, memory dumping, automating processes. Credit will not be given for CSC 448 if credit is given for CYEN 404.

449: Special Topics in Operating Systems. 0-3-3. Preq., consent of instructor. Selected topics in the area of operating systems that are of current importance or special interest.

450: Computer Networks: 0-3-3. Preq., CSC 325 or consent of instructor. An overview of computer networks. Topics include network topologies, layers, local area networks, and performance measurement and analysis. **(G)**

452: Distributed and Cloud Computing. 0-3-3. Preq., CSC 345 or consent of instructor. Overview of distributed computing. Theoretical and practical aspects of distributed systems and cloud computing. Modeling aspects including architecture, performance, reliability, availability, service models, security characteristics. Credit will not be given for CSC 452 if credit is given for CYEN 405.

454: Advanced Computer Networks. 0-3-3. Preq., CSC 450. This course will focus on advanced topics in computer networking. Topics include: network security, wireless networking, congestion control, quality of service, layering protocols network applications.

456: Computer Science Internship. 40-0-3. (Pass/Fail). Preq., Consent of advisor and Program Chair is required. (Approval based on relevance of proposed internship to degree program.) On-site, supervised, structured work experience. The course may be taken to facilitate a three month off-campus work experience. May not be repeated for credit. **(G)**

464: Advanced Digital Design. 0-3-3. Preq., CSC 265. Synchronous sequential circuits, FSM optimization and implementation, testing, level-mode sequential design, race and hazards, advanced ALU, programmable logic devices, CAD tools and HDLs.

466: Microprocessor Systems Design. 0-3-3. Preq., CSC 364. Microprocessor-based system design, bus design, memory systems, input/output interfacing and DMA, microprocessor-based laboratory project.

468: Introduction to VLSI. 0-3-3. Preq., CSC 265. VLSI design methodologies, fabrication and layout, combinational and sequential design in VLSI, subcell design, system design, advanced design techniques.

469: Special Topics in Computer Architecture. 0-3-3. Preq., consent of instructor. Selected topics in the area of computer architecture that are of current importance or special interest.

470: Computer Graphics. 0-3-3. Preq., CSC 325. Fundamentals of two and three-dimensional computer graphics. Two- and three-dimensional transformations, projection techniques, illumination models, shading, ray tracing. Exposure to a modern game design engine. **(G)**

472: Human-Computer Interface. 0-3-3. Preq., CSC 230 and 325. Theory, design, and implementation of graphical human-computer interface strategies. Topics include interface layout, visualizing knowledge, comparison of user interfaces, and hypertext/hypermedia.

475: Artificial Intelligence. 0-3-3. Preq., CSC 325. The design and implementation of artificially intelligent programs. Topics include game playing, heuristic search, logic, knowledge representation, and reasoning strategies. Social implications are also discussed. **(G)**

476: Data Analytics Tools and Applications. 0-3-3. Preq., consent of instructor. Introduction to data analytics; key tools and concepts from the functional, technical, and implementation perspective of using data analytics to solve real world challenges.

479: Special Topics in Computer Applications. 0-3-3. Preq., consent of instructor. Selected topics in the area of computer applications that are of current importance or special interest.

485: High Performance and Availability Computing. 0-3-3. Preq., CSC 345 equivalent or consent of instructor. Study of and development in High Availability and Performance Computing (HAPC) and related fields, combining reading, research, and hands-on-oriented education.

486: Introduction to Biocomputing. 0-3-3. Preq., CSC 310 equivalent or consent of instructor. DNA computing, DNA sequencing techniques, similarities between DNA, computations in living organisms, the gene assembly process in ciliates and formal systems for gene assembly. **(G)**

487: Advanced Biocomputing. 0-3-3. Preq., CSC 486 equivalent or consent of instructor. Topics include: advanced pair-wise alignment algorithms, protein folding, self assembly, splicing systems, P systems, simulation of cells, and future research directions in biocomputing.

490: Applied Computing Project. 1-3 hours credit. Preq., junior standing in Computer Science or equivalent. Independent investigation of a problem in computing.

493: Data Mining and Knowledge Discovery. 0-3-3. Preq., CSC 325 or equivalent or consent of instructor. Topics include: Data Mining (DM) motivation, knowledge discovery paradigm, preprocessing and normalization, dimensionality reduction, DM primitives, mining frequent itemsets, association rules, classification and evaluation measures.

498: Advanced Data Mining, Fusion, and Applications. 0-3-3. Preq., CSC 325 or equivalent, or consent of instructor. Topics include: High-dimensional Data Mining (DM), clustering, information, fusion, time-series DM, image indexing, bioinformatics and spatiotemporal DM.

499: Special Topics in Computer Science. 0-3-3. Preq., consent of instructor. Selected topics of current importance or special interest.

505: Expert Systems. 0-3-3. Preq., CSC 475. Current topics in expert system design, knowledge acquisition, explanation generation and knowledge representation. A substantial expert system design, implementation and testing project is required.

512: Programming Language Semantics. 0-3-3. Preq., CSC 310 or CSC 436. Syntax specification using attribute grammars and two level grammars, operational semantics, translational semantics, formal semantic techniques such as denotational semantics, algebraic specification, and axiomatic semantics.

520: Advanced Analysis of Algorithms and Complexity. 0-3-3. Preq., CSC 420. Formal analysis of time and space requirements of various algorithms, greedy algorithms, divide-and-conquer, dynamic programming, P and NP algorithms; Turing machines and unsolvability.

521: Advanced Computer Architectures. 0-3-3. Preq., CSC 364. Topics include: pipeline systems design, processor design techniques (concepts, analysis, performance comparison, implementation, commercial processors), memory system design, interconnection media.

530: Database Theory. 0-3-3. Preq., CSC 430. Data models, relational algebra and relational calculus, data dependencies and schema normalization, Datalog, recovery and concurrency control, distributed database environments.

532: Advanced Topics in Software Engineering. 0-3-3. Preq., CSC 403. Readings in requirements analysis, formal specification techniques, software design techniques, CASE tools, software metrics, software verification and validation, quality assurance and software safety.

534: Performance Measurement and Evaluation. 0-3-3. Preq., CSC 345. Computer systems performance; analysis techniques; data acquisition methods; simulation techniques; interpretation of results.

541: High Performance Computer Architecture. 0-3-3. Preq., CSC 364. Topics include: principles of scalable performance, multiprocessor system design, message-passing systems, vector computers, data flow computers, and multithreaded architecture.

542: Introduction to Cyber Security. 0-3-3. Preq., CSC 450. An overview of cyber security; provides students with practical cyber security experience based on theoretical foundations. Topics include: computer network defense, computer network attack, wireless security.

543: Digital Forensics and Cyber Crime. 0-3-3. Preq., CSC 450. An overview of computer crime and methods to uncover protect and exploit digital evidence. Topics include: cyber crime, network-based forensics, forensics analysis techniques, mobile device forensics.

550: Special Problems. 1-4 semester hour credit. Individual research and investigation of a problem in computer science or computing practice.

551: Research and Thesis in Computer Science. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximun credit applicable towards the degree is 6 semester hours.

552: Distributed and Cloud Computing. 0-3-3. Preq., CSC 345 or consent of instructor. Theoretical and practical aspects of distributed systems and cloud computing. Modeling aspects including architecture, performance, reliability, availability, service models, security. Students complete a project.

554: Advanced Networking. 0-3-3. Preq., CSC 450 or consent of instructor. May be repeated with change in subject matter. Selected research topics of current interest in the field of computer communications and networks.

555: Practicum. 0-3-3 (Pass/Fail). Maximum credit allowed is three semester hours. Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of a problem in computer science; technical literature survey required; development of a computer-based solution.

557: Special Topics: Computer Science. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of computer science. May be repeated as topics change.

570: Advanced Topics in Computer Graphics. 0-3-3. Preq., CSC 470. Techniques used to produce realistic images of three-dimensional objects on computer graphics hardware. Topics include: reflection models, shading techniques, ray tracing, texture and animation.

575: Advanced Topics in Artificial Intelligence. 0-3-3. Preq., CSC 475. Advanced topics in artificial intelligence including: problem-solving systems, natural language understanding, intelligent tutoring systems, learning and neural networks.

576: Data Analytics Tools and Applications. 0-3-3. Preq., consent of instructor. Introduction to data analytics; key tools and concepts from the functional and technical, perspective to solve real world challenges. Students complete a related project.

579: Data Mining and Knowledge Discovery. 0-3-3. Preq., CSC 325 equivalent or consent of instructor. Topics include: Data Mining (DM) motivation, knowledge discovery paradigm, preprocessing and normalization, dimensionality reduction, DM primitives, mining frequent itemsets, association rules, classification and evaluation measures.

580: Advanced Data Mining, Fusion and Applications. 0-3-3. Preq., CSC 325 or equivalent or consent of instructor. Topics include: High-dimensional Data Mining (DM), clustering algorithms, information fusion principles, time-series mining, digital image/video mining, bioinformatics DM, spatio-temporal data structures and emerging techniques.

581: Parallel Algorithms. 0-3-3. Preq., CSC 240. Models of parallel computers, basic communications operations, algorithms for searching, sorting, graph structures, and systolic systems, dynamic programming, performance and scalability of parallel systems.

582: Parallel Computational Methods. 0-3-3. Preq., CSC 240, MATH 415. Parallel implementations of FFT, interpolation, integration, Eigensystems, matrix maximization, ODEs, PDEs.

583: Computational Solutions for PDE I. 0-3-3. Preq., MATH 414. Finite element method, weak form problems. Linear element, triangular element, and rectangular element methods for elliptic and parabolic PDEs. Emphasis on program implementation.

584: Computational Solutions for PDE II. 0-3-3. Preq., CSC 583 or MATH 574. Finite difference schemes and their accuracy, stability, and convergence. Schemes for parabolic, hyperbolic, and elliptic PDEs. Emphasis on program implementation.

585: High Performance and Availability Computing. 0-3-3. Preq., CSC 345 equivalent or consent of instructor. Study of and development in High Availability and Performace Computing (HAPC) and related fields, combining reading, research, and hands-on-oriented education.

586: Advanced Biocomputing. 0-3-3. Preq., CSC 486 equivalent or consent of instructor. Topics include: advanced pairwise alignment algorithms, protein folding, self assembly, splicing systems, P systems, simulation of cells, and future research directions in biocomputing.

COUNSELING (COUN)

201: Student Personnel Services. 0-3-3. Non-Psychology Majors only. A study of student personnel programs in colleges and universities.

400: Introduction to Counseling. 0-3-3. Introductory course for professional workers. Includes purposes and scope of counseling service, concepts, principles and basic techniques of counseling. **(G)**

460: Behavioral Counseling. 0-3-3. A non-cognitive approach to counseling that presents the necessary attitudes, concepts, principles, and skills for individual counseling.

500: Principles and Administration of Guidance Services. 0-3-3. An overview of the current principles and practices involved in various types of guidance and counseling services.

501: Advanced School Counseling. 0-3-3. An in-depth and culminating course designed to bridge together all aspects of becoming a school counselor; focuses on the ASCA model.

502: Mental Health Counseling. 0-3-3. Preq., Enrollment in Counseling and Guidance Program or permission of the instructor. Seminar focusing on counselor professional identity inclusive of knowledge, scholarship, and writing standards.

503: Loss, Grief, and Life Transitions. 0-3-3. Preq., Permission of the Instructor. An in-depth exploration of crisis, loss, and life transition across the lifespan; focuses on development of grief counseling skills.

505: Analysis of the Individual. 3-2-3. This course offers students an orientation to psychological testing procedures, their interpretation, evaluations and use in the understanding of clients.

506: Introduction to Rehabilitation Counseling. 0-3-3. Philosophical, social, psychological and legislative bases of rehabilitation; nature and scope of the process and functions of rehabilitation counselors.

508: Introduction to Counseling Theories. 0-3-3. A detailed study of a selection of the best known schools of counseling theory.

509: Advanced Seminar in Counseling Theories and Techniques. 0-3-3. An advanced study that weaves together counseling theories and techniques; focuses on effective skill application.

513: Career Information and Career/Life Style Development. 0-3-3. Provides an understanding of career development; occupational/educational information sources and systems; career and lifestyle counseling; career decision-making and instruments relevant to career planning.

514: Career Education: Vocational Guidance. 0-3-3. A course in career guidance designed to provide an overview of career development and its applications within the high school setting.

516: An Introduction to Group Processes. 0-3-3. Preq., COUN 508. Emphasis is on providing students with a knowledge of group dynamics, and learning basic group counseling techniques under supervision.

517: Counseling Children and Adolescents. 0-3-3. Preq., COUN 508. A review of contemporary literature and scientific research which deals with relevant, effective, and culturally sensitive techniques for working with children and adolescents.

518: Techniques of Counseling. 3-2-3. Preq., COUN 508. Provides an overview of counseling techniques and interview methods.

520: Case Studies in Counseling. 1-3 hours credit. Preq., COUN 508 and consent of instructor. Preparation and use of case studies in counseling.

521: Seminar: Current Psychological Literature. 1-3 hours credit. May be repeated. Preq., COUN 508 and consent of instructor. Students are required to do extensive reading on selected topics in psychology.

522: Field Work in Counseling. 3 hours credit (6). Preq., COUN 518 and consent of instructor. Supervised study, observation, and practice in selected employment settings.

524: Diagnosis and Treatment Planning in Counseling. 0-3-3. Preq., Enrollment in Counseling and Guidance Program or permission of the instructor. This course focuses on utilizing the DSM-5, mental status exam, treatment plans, etc.

526: Problems in Guidance. 3 hours credit (6). Special conferences, workshops, and seminars as requested by elementary and secondary school personnel. May be repeated for a maximum of 6 hours credit.

527: Addiction Counseling. 0-3-3. An introduction to the field of Addiction Counseling. Emphasis is placed on recognition and identification of the addicted as well as basic treatment techniques.

528: Advanced Addiction Counseling. 3-2-3. Preq., COUN 527. A methods course intended to equip the student with a basic conception of various therapeutic modalities.

529: Cross-cultural Counseling. 0-3-3. Investigation of the development of cultural identity and techniques for appropriate interactions with clients from different cultural groups.

530: Practicum. 5-1-3. Preq., Completion of all core courses and successful completion of comprehensive exams. Open only by application. Supervised professional activity in the student's major field. (Minimum 3.0 GPA required)

531: Internship. 20-1-3 (6). Preq., COUN 530 or equivalent and permission of adviser. Advanced supervised counseling practice in a setting appropriate to the student's professional development.

532: School Counseling Practicum. 5-1-3. Preq., Completion of all core courses and successful completion of comprehensive exams. Open only by application. Supervised professional activity in a school setting. (Minimum 3.0 GPA is required)

533: Advanced School Counseling Practicum. 5-1-3. Preq., Completion of approved 48-hour track core courses and passing score on comprehensive exam. Open only by application. Requires 100 clinical hours. Supervised professional activity in school setting.

534: Advanced Mental Health Practicum. 5-1-3. Preq., Completion of approved 60-hour track core courses and passing score on comprehensive exam. Open only by application. Requires 100 clinical hours. Supervised professional activity in a mental health setting.

535: Advanced Internship. Preq., Completion of COUN 533 or 534 and permission of instructor. Advanced supervised experience in a school or mental health setting.

COUN535A: 20-1-1 (6). Advanced supervised experience in a school or mental health setting. Requires 100 clinical hours for each internship. This course must be taken six times (normally in back-to-back terms) to complete the total clinical requirements.

COUN535B: 20-1-2 (6). Advanced supervised experience in a school or mental health setting. Requires 200 clinical hours for each internship. This course must be taken three times (normally in back-to-back terms) to complete the total clinical requirements.

COUN535C: 20-1-3 (6). Advanced supervised experience in a school or mental health setting. Requires 300 clinical hours for each internship. This course must be taken twice (normally in back-to-back terms) to complete the total clinical requirements.

585: Comprehensive Exam in School Counseling. No credit. Required for all students in the School Counseling concentration of the Counseling and Guidance master's program. Completion of core courses is required.

586: Comprehensive Exam in General Counseling. No credit. Required for all students in General Counseling concentration of the Counseling and Guidance master's program. Completion of core courses is required.

587: Comprehensive Exam in Human Services. No credit. Required for all students in the Human Services concentration of the Counseling and Guidance masater's program. Usually taken in the last term before graduation, but other arrangements may be made under extenuating circumstances.

590: Ethics and Professional Practice. 0-3-3. Preq., COUN 508. An in-depth investigation of ethical and legal issues, as well as technical concerns, related to the professional practice of counseling.

CYBER ENGINEERING (CYEN)

120: Introduction to Computer Programming. 0-3-3. Preq., MATH 101 or equivalent. Introductory programming using an objects-first approach. Problem analysis and solution. Introductory modeling and abstraction. Documentation, good programming practices. Data and control structures as needed. Credit will not be given for CYEN 120 if credit is given for CSC 120.

122: Intermediate Computer Programming. 0-3-3. Preq., CYEN 120. Analysis, design and implementation of programs. Application structures, algorithm development, event-driven programming, graphical user interfaces, exception handling, recursion. More complete coverage of programming languages.

130: The Science of Computing I. 0-3-3. Preq., MATH 101 or equivalent. An introduction to computing, introductory programming using an objects-first approach, problem analysis and solution, basic algorithm development. This is the first Living with Cyber course. Credit will not be given for CYEN 130 if credit is given for CSC 130.

131: The Science of Computing II. 0-3-3. Preq., CYEN 130 or CSC 130. Analysis, design, and implementation of programs; intermediate algorithm development; more coverage of programming language features. This is the second Living with Cyber course. Credit will not be given for CYEN 131 if credit is given for CSC 131.

132: The Science of Computing III. 0-3-3. Preq., CYEN 131 or CSC 131 or consent of instructor. Introduction to computer graphics and graphical user interfaces; algorithm development; more coverage of programming language features; recursion. This is the third Living with Cyber course. Credit will not be given for CYEN 132 if credit is given for CSC 132.

301: Computer Network Security. 0-3-3. Preq., CSC 220. Overview of computer network security, broad coverage of cyber security concepts, computer network defense, computer network attack, and wireless security.

400: Cyber Futures. 0-3-3. Preq., Junior Standing. An overview that seeks to understand what is likely to continue, what is likely to change, and what is novel in the context of cyber.

401: Digital Forensics and Cyber Crime. 0-3-3. Preq., CYEN 301. An overview of forensics including methods to uncover and exploit digital evidence; cyber crime, forensics analysis techniques.

402: Access Control Logic and Covert Channels. 0-3-3. Preq., CYEN 301 and MATH 311. An overview of access control logic and covert channels. Topics include access control concepts and logic, covert channel detection, future security predictions, steganography, steganalysis, data hiding.

403: Wireless and Mobile Security. 0-3-3. Preq., CYEN 301. An overview of wireless and mobile security providing students with practical and theoretical experiences. Topics include threat analysis, security infrastructure, security services, wireless network security components.

404: Reverse Engineering. 0-3-3. Preq., CYEN 301 or consent of instructor. Overview of reverse engineering techniques, modern tools for reverse engineering of machine code. Topics include gatghering information, PE32 format, obfuscation techniques, memory dumping, automating processes. Credit will not be give for CYEN 404 if credit is given for CSC 448.

405: Distributed and Cloud Computing. 0-3-3. Preq., CSC 345 or consent of instructor. Overview of distributed computing. Theoretical and applicable aspects of distributed systems and cloud computing. Modeling aspects including architecture, performance, reliability, availability, service models, security characteristics. Credit will not be given for CYEN 405 if credit is given for CSC 452.

406: Applied Cryptography. 0-3-3. Preq., CYEN 301 or consent of instructor. An introduction to the basic theory and practice of cryptographic techniques used in computer security. Topics include encryption, key management, hashing, network security protocols. Credit will not be given for CYEN 406 if credit is given for CSC 444.

480: Theory of Cyber Science. 0-3-3. Preq., CSC 220 and MATH 311. An overview of formal languages, the abstract models of computing capable of recognizing those languages, and the grammar used to generate them.

481: Software Design and Engineering. 0-3-3. Preq., CYEN 480 and senior standing. Design, construction and maintenance of large software systems. Project planning, requirements analysis, software design methodologies, software implementation and testing, maintenance.

482: Senior Capstone. 0-3-3. Preq., CYEN 481. Social and ethical aspects of computing and cyber engineering. Communication skills will be emphasized through professional presentations and a significant senior design project.

489: Special Topics in Cyber Engineering. 0-3-3 (9). Preq., Consent of Instructor. Selected topics of current importance or special interest. May be repeated for credit.

ECONOMICS (ECON)

201: Economic Principles and Problems. 0-3-3 each. A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system. (201-Macro). Master Course Articulation Matrix* [LCCN:CECN 2213]

202: Economic Principles and Problems. 0-3-3 each. A study of basic economic principles and problems, with particular reference to the operation and social implications of the American economic system. (202-Micro). Master Course Articulation Matrix* [LCCN:CECN 2223]

215: Fundamentals of Economics. 0-3-3. (Not open to students who have had ECON 201-202.) A survey of the major principles of economics designed for the student whose curriculum requires only one quarter of economic principles. Cannot be taken for credit for an undergraduate degree in Business. Master Course Articulation Matrix* [LCCN:CECN 2113]

312: Monetary Economics. 0-3-3. Preq., ECON 201 and 202. A study of the causes of changes in the supply of money and rate of spending and the effects of these changes on production, employment and the price level. Master Course Articulation Matrix* [LCCN:CECN 3113]

399: Environmental Economics. 0-3-3. Preq., ECON 201 or 202 or 215. Introductory examiniation of the markets for natural resources and environmental quality, with a special emphasis on regulation and political structures.

401: Internship in Economics I. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

402: Internship in Economics II. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

403: Economics of Industrial Organization. 0-3-3. Preq., ECON 202. Relationships between structure, conduct and performance of industries using theoretical and empirical material: Antitrust and environmental regulation, R&D, product advertising and pricing are examined.

406: Comparative Economic Systems. 0-3-3. Preq., ECON 202. A study of alternative economic systems such as capitalism, socialism, communism, and "mixed" in theory and practice.

407: Contemporary Problems and Issues in Economics. 0-3-3. (6). Preq., ECON 201, 202, and consent of instructor. An analysis of contemporary problems and issues of current interest. Course content would change with the topic covered in a specific quarter.

408: Intermediate Economic Theory. 0-3-3. Preq., ECON 202 or consent of instructor. Microeconomics; intensive study of price, production, and distribution theories.

409: Managerial Economic Analysis. 0-3-3. Preq., ECON 202 or consent of instructor. Lectures and cases emphasizing economic principles as used in managerial decision-making. Includes analysis of demand, cost and price relationships, price decision, risk and uncertainty, and capital investment.

418: Labor Economics. 0-3-3. Preq., ECON 202 or consent of the instructor. Fundamentals of labor market operations, economic analysis of labor legislation; impact of American unions upon the firm's decision making and the national economy.

437: Aggregate Economic Analysis. 0-3-3. Preq., ECON 312. Macroeconomics; intensive study of economic theory of national income analysis, interest, employment, and fiscal policy.

485: International Economics. 0-3-3. Preq., ECON 201 or consent of instructor. Introduction to modes of business operations and the economic factors with affect international trade. Study of principles, practices, and theory of how and why nations trade. **(IER)**

494: Principles of Microeconomics. 0-0-3. Self-paced course in economics sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail)

501: Principles of Macroeconomics. 0-0-3. Self-paced foundation course designed to provide working knowledge of macroeconomics sufficient to enable student to be successful with core MBA courses. (Pass/Fail)

510: Managerial Economics. 0-3-3. Preq., ECON 202 (or equivalent), or ECON 494 and QA 390 or QA 494. Analysis and cases; actual case studies in the application of price and distribution theory to problems of the firm.

512: Current Economic Policies. 0-3-3. An investigation of modern economic concepts in the United States through a study of policies advanced by various economic groups tending to shape economic action.

613: Macroeconomic Theory I. 0-3-3. Preq., ECON 437 or other acceptable background course(s). Requires Doctoral standing. May require additional class meetings. Analysis of monetary factors and government revenue-expenditure factors affecting the general level of prices, investment decisions, interest rates, national income and employment. Credit will not be given for ECON 613 if credit is given for ECON 513.

620: Advanced Microeconomic Theory. 0-3-3. Preq., ECON 408 or other acceptable course(s). Requires Doctoral standing. May require additional class meetings. Value and distribution theory emphasizing applications to business operations and public policy issues. Credit will not be given for ECON 620 if credit is given for ECON 520.

632: Econometric Methods. 0-3-3. Preq., QA 432 or other acceptable courses. Requires Doctoral standing. May require additional class meetings. The use of statistical techniques in economic research including estimation and interpretation of parameters of economic models. Credit will not be given for ECON 632 if credit is given for ECON 532.

641: Microeconomics: Business Conditions Analysis. 0-3-3. Preq., ECON 510. Requires Doctoral standing. May require additional class meetings. Detailed review of techniques, procedures, and data sources used by business economists to gather, analyze, interpret and forecast microeconomic variables. Credit will not be given for ECON 641 if credit is given for ECON 541.

650: Directed Study in Economics. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of economics.

685: Comprehensive Exam in Economics. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in economics. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in economics. Requires consent of graduate director.

EDUCATION (EDUC)

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Education. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study. May be repeated for credit.

430: Internship in Teaching. 2-9 hours credit (9). Preq., 12 hours of professional education. Supervised teaching experience in area(s) of certification in education. (Pass/Fail).

460: Methods for Teaching and Testing in ESL. 0-3-3. Preq., Senior standing. Theories and techniques for teaching English as a Second Language and evaluating student performance; emphasis on communicative competence. **(G)**

462: Principles and Problems of Cooperative Education. 0-3-3. Preq., Admission to a teaching program. The basic principles and philosophies of cooperative vocational education. History and development of cooperative education. **(G)**

463: Materials and Methods of Teaching Art. 2-2-3. Preq., Admission to a teaching program. The planning of a course of art and the methods of presentation of such a course in the elementary and high schools. **(G)**

473: Secondary Practicum in Education. 9-1/2-3. Structured laboratory and course experiences in area(s) of specialization in education.

489: Special Topics. 1-4 hours credit (9). Selected topics in an identified area of study in the College of Education. May be repeated for credit. **(G)**

494: Special Topics. 1-4 hours credit (9). Selected topics in an identified area of study in the College of Education. May be repeated for credit. **(G)**

530: Internship in Teaching. 2-9 hours credit (9). Preq., registration by application only; requires approval of academic advisor and Director of Field and Clinical Experiences. Supervised teaching experience in area(s) of certification in education. May be repeated for up to 9 hours credit.

541: Introduction to Graduate Study and Research. 0-3-3. Experience is gained in the application of techniques of educational research, in writing in acceptable form, and in evaluating research. Required of all master's candidates in education and should be scheduled during the first six hours of graduate work.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Education.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Education.

EDUCATIONAL COMPUTER TECHNOLOGY (ECT)

440: Technology for Teachers I. 0-3-3. This course is designed to introduce teachers to computer applications that support classroom instruction. Classroom management techniques and modeling effective teaching strategies will also be a part of the instructional process. **(G)**

441: Technology for Teachers II. 0-3-3. This course is designed to enhance teachers' classroom instruction through technology integration. Classroom management techniques and modeling effective teaching strategies will also be a part of the instructional process. **(G)**

442: Curriculum Enhancement Through Technology. 0-3-3. This course is designed to enhance the instructional program within the K-12 classroom. Emphasis will be placed on how technology can be easily integrated into standards-based lessons. **(G)**

445: Introduction to Technology for Teachers. 4-1-3. This course is for preservice and inservice teachers who want to develop proficiency in using technology to support classroom learning. **(G)**

500: Technology Leadership to Support Standards-Based Teaching & Learning. 4-1-3. Preq., ECT 445 or equivalent. Exploration of ways to use technology to support standards-based teaching and learning in the classroom.

501: Educational Telecommunications, Networks, & the Internet. 4-1-3. Preq., ECT 500 or equivalent. Examination of methods and resources for intergrating the Internet into content area learning.

502: Design & Development of Multimedia Instructional Units. 4-1-3. Preq., ECT 500 and 501. Design and development of multimedia products to facilitate student learning.

510: Technology for Teaching Reading/Language Arts. 4-1-3. Preq., ECT 445 or equivalent. Exploration of a variety of technology to support reading/language arts instruction. Includes the design and development of multimedia products.

535: Effective Instructional Technology: An Introduction. 0-3-3. Addresses the importance and relevance of the six ISTE-NETS standards to classroom teaching and performance indicators and profiles.

EDUCATION CURRICULUM AND INSTRUCTION (EDCI)

125: Introduction to Teaching. 1-3-3. An introduction to teaching and learning in PK-12 settings facilitated through visits to schools, classroom discussions, selected readings, and hands-on activities in schools.

210: Instructional Technology. 3-0-3. This course is designed to introduce instructional technology for teaching and learning. Teacher candidates will develop proficiency in the integration and evaluation of electronic media.

400: Human Exceptionalities. 3-2-3. This course provides a survey (e.g. definitions, characteristics, identification, legislation, and education procedures) of students with exceptionalities (e.g., GT, MR, LD, EBD, VI, HI, PD). **(G)**

401: Directed Observation and Pre Student Teaching Experiences. 3 3/4-1-1 (3). Preq., Admission to a teaching program. Consent of Director of Field and Clinical Experiences. Structured laboratory experinces in area(s) of teacher certification. May be repeated for credit.

402: Measurement in Education. 0-2-2. Includes principles of measurement and evaluation, construction of teacher-made tests, and utilization of standardized tests.

403: Materials and Methods of Teaching Reading. 0-3-3. Preq., EDUC 480. Instructional techniques designed to assist the secondary teacher in implementing reading strategies in content courses. **(G)**

405: Materials and Methods in Teaching Agricultural Education. 0-3-3. Preq., AGED 460 or consent of instructor. Techniques, requirements, and organization of state curriculum guides and course requirements in agricultural education in public schools. Requirements of the FFA advisor/agriculture teacher. **(G)**

409: Materials and Methods in Teaching Business Education. 10-2-3. Preq., Admission to a teaching program. A course designed to acquaint the student with the best practices in teaching business subjects. **(G)**

410: Business and Office Procedures. 10-2-3. Preq., Admission to a teaching program. Methods and procedures in developing and coordinating a cooperative office education program in the secondary school. **(G)**

411: Curriculum Development for the Gifted. 0-3-3. This course will expose teachers to curriculum development, adapting curriculum to gifted learner needs in core domains, and

scaffolding instruction to support differentiated curriculum. **(G)**

412: Social and Emotional Needs of the Gifted. 0-3-3. This course will expose teachers to the divergent perspectives on characteristics of gifted and talented individuals and the social and emotional component of this population. **(G)**

413: Characteristics and Study of gifted Individuals. 0-3-3. This course will expose teachers to current research and identification procedures for determining giftedness of children, being creative, and becoming gifted. **(G)**

414: Methods of Teaching the Gifted. 0-3-3. This course is designed to expose teachers to the divergent perspectives on characteristics of gifted and talented individuals and the means of defining this population. **(G)**

416: Student Teaching. 2-9 (9)hours credit. Preq., Meet all qualifications identified in this catalog for teaching level or area of specialization. Student receives appropriate supervised teaching experiences. Total clock hours determined by program. Two hours of seminar.

417: Diagnosis and Correction of Reading Difficulties. 11/4-2-3. Preq., Admission to a teaching program, EDUC 424, and PSYC 207. Field-based experience in diagnosing reading problems and recommending appropriate instructional interventions for school children. **(G)**

420: Practica in Education. 10-1-3. Preq., Admission to a teaching program and consent of Director of Field and Clinical Experiences. Structured laboratory experiences in area(s) of specialization in education. May be repeated for credit.

421: Materials and Methods for Early Childhood/Elementary Grades-Mathematics. 0-3-3. Preq., PSYC 204 or 207 or 507, and admission to a teaching program. An exploration of content, methodologies, and assessments in the P-3 mathematics program. **(G)**

422: Materials and Methods for Elementary/Middle Mathematics. 0-3-3. Preq., Admission to a teaching program and PSYC 204 or 207 or 507. An examination of the characteristics and objectives of the modern elementary mathematics program combined with experiences in content, methods, and organizations. **(G)**

423: Materials and Methods for Elementary/Middle Language Arts. 0-3-3. Preq., Admission to a teaching program and PSYC 204 or 207 or 507, concurrent enrollment required with EDUC 424. A course to enable students to use current principles, research, methods and materials to teach oral, written and reading communication skills. **(G)**

424: Materials and Methods for Elementary/Middle Reading. 0-3-3. Preq., Admission to a teaching program, Reading Methods, and PSYC 204 or 207 or 507, concurrent enrollment required with EDUC 423. Principles, methods, and research pertaining to the teaching of reading will be emphasized. **(G)**

425: Materials and Methods for Elementary/Middle Science. 0-3-3. Preq., Admission to a teaching program and PSYC 204 or 207 or 507. A course for the study of curriculum, organization, and teaching of elementary/middle science. **(G)**

426: Materials and Methods for Elementary/Middle Social Studies. 0-3-3. Preq., Admission to a teaching program and PSYC 204 or 207 or 507. A course for the study of curriculum, organization, and teaching elementary/middle social studies. **(G)**

431: Literacy Development through Word Study for all Learners. 2-1-3. Preq., Admission to a teaching program. This course is designed to provide candidates with research-based, hands-on activities and pedagogical approaches to teach the graphophonic relationships of phonemic awareness, phonics, and spelling. **(G)**

432: Kindergarten Education. 1-3-3. Preq., PSYC 204 or 207 or 507 and Admission to a teaching program. Course will involve curriculum planning based on principles of child development. Students will become familiar with the curriculum development process by using curriculum documents including instructional units. **(G)**

433: Special Problems in School Curriculum. 1-4 hours credit. (9). Preq., consent of instructor. Course is designed to deal with selected problems in elementary and secondary schools.

434: Diverse Learners. 2-1-3. Preq., Admission to a teaching program. This course provides P-12 teaching candidates with the awareness, knowledge, skill, and disposition to identify, assess, teach, accommodate, and manage the instructional needs of diverse learners. **(G)**

435: Trends and Issues in Education. 2-1-3. Preq., Admission to a teaching program. This course provides PK-12 teacher candidates with the awareness, knowledge, skill, and disposition to identify, assess, teach, and accommodate the changing needs of all learners. **(G)**

436: Braille I. 1-3-3. Preq., Admission to a teaching program or consent of instructor. Students develop proficiency in reading and writing the Braille literary code while developing an understanding of which visually impaired children benefit from Braille reading instruction. **(G)**

437: Reading/Language Arts Methods. 2-1-3. Preq., Admission to a teaching program. Principles, methods, and research pertaining to the teaching of reading and language arts will be emphasized. **(G)**

438: Instructional Design, Strategies, and Assessment. 2-1-3. Preq., Admission to a teaching program. This course will be a generic methods course which explores methods and procedures to assess and facilitate student academic growth. **(G)**

439: Curriculum Design for the Multicultural Classroom. 0-3-3. Multiple conceptions of multicultural curriculum design, teaching, and learning are examined to enable teachers to strengthen their knowledge, skills and dispositions associated with multicultural curricula. **(G)**

440: Behavior Management of Students with Mild/Moderate Disabilities. 3-2-3. Preq., Admission to a teaching program. This course is an advanced study of the biological, social, psychological, and behavioral factors associated with behavioral disorders. **(G)**

441: Methods of Teaching PK-3. 1-3-3 Preq., PSYC 207 and Admission to a teaching program.. Practical problems in the selection and organization of the curriculum to promote children's learning. Emphasis on planning, selecting equipment, teaching aids, and teaching procedure. **(G)**

442: Early Childhood Curriculum Organization and Framework. 0-3-3. Organization of preschool programs with emphasis on creative activities, materials, and facilities; introduces the students to the theories, research, and techniques of family and community involvement. **(G)**

445: Keyboarding and Computer Applications in the Classroom. 10-2-3. Preq., Admission to a teaching program. A course designed to develop keyboarding skills, techniques, and computer applications for classroom instruction. **(G)**

447: Software Applications for Classroom Instruction. 10-2-3. Preq., EDCI 445 and Admission to a teaching program. A course designed to apply keyboarding skills, techniques, and technology integration to support classroom instruction. **(G)**

448: Instructional Software Design and Development. 10-2-3. Preq., EDCI 447 and Admission to a teaching program. A methods course designed for teaching multimedia and web-based instructional design and development. **(G)**

450: Improving Instruction of Art. 2-2-3. Preq., Admission to a teaching program. Problems of teaching art in elementary and junior high school with emphasis upon philosophy, art materials and techniques, evaluation and curriculum planning. **(G)**

453: Foreign Language Teaching Methods. 0-3-3. Preq., 12 hours of a foreign language and admission to a teaching program. Study of a broad range of foreign language teaching methods; examination of underlying theories and practical applications. Also listed as FLNG 453. **(G)**

454: English Grammar in ESL Teaching. 0-3-3. Preq., Senior standing. An analysis of English grammar specifically for developing instructional techniques used in teaching grammar for communicative competence in ESL. Also listed as ESL 454. **(G)**

456: Materials and Methods in Teaching Mathematics. 0-3-3. Preq., EDUC 480 and MATH 241, Admission to a teaching program. The nature of mathematics and methods of teaching. Special emphasis will be placed on the interpretation and solving of reading problems. **(G)**

457: Materials and Methods in Teaching English. 0-3-3. Preq., Admission to a teaching program. The student will be introduced to the best techniques of organizing and presenting English material. **(G)**

458: Materials and Methods in Speech, Language and Hearing in the Public Schools. 0-3-3. Preq., Admission to a teaching program. Practical problems in the identification, diagnosis, and treatment of communication disorders in school children, with emphasis on materials, organization of therapy program and teaching procedures. **(G)**

459: Materials and Methods in Teaching Social Studies. 0-3-3. Preq., EDUC 480, Admission to a teaching program. An examination of the character and purpose of social studies is followed by presentation of appropriate teaching suggestions. **(G)**

464: Materials and Methods in Teaching Science. 0-3-3. Preq., Admission to a teaching program. A careful examination of the most advanced methods of organizing the presenting materials in sciences for the secondary school. **(G)**

466: Adaptive Technology for the Visually Impaired. 0-3-3. Preq., Admission to a teaching program or consent of instructor. Students receive hands-on experience using access technology equipment designed for blind/visually impaired learners, performing assessments, and writing reports and IEP goals. **(G)**

467: Materials and Methods in Teaching Speech. 0-3-3. Preq., Admission to a teaching program. An examination of materials and methods for teaching speech in elementary and secondary schools. **(G)**

471: Classroom Management. 1-3-3. Preq., Admission to a teaching program. Course emphasizes the application of concepts, principles, and skills necessary for designing, implementing, evaluating, and revising plans for classroom management. **(G)**

472: Transitional and Vocational Procedures. 3-1-3. Preq., EDCI 400 and admission to a teaching program. Emphasizes transition and vocational models, curricular strategies, and services. Field based experiences focus on career exploration and planning, inter-agency collaboration, research and family involvement. **(G)**

473: Educational Strategies and Methods for Students with Mild/Moderate Disabilities. 2-1-3. Preq., Admission to a teaching program. Procedures, methods, materials, and research-based strategies for students with disabilities (1-12) with emphasis on accommodations, modifications, and Individualized Education Programs (I.E.P.s). **(G)**

475: Foundations of Education. 0-2-2. An interdisciplinary survey of the development of educational institutions and practices with particular focus upon the influences of social, legal, historical and philosophical thought. **(G)**

477: Teaching Methods for Effective Instruction of Science and Social Studies. 2-1-3. Preq., Admission to a teaching program and PSYC 207. A course for the study of curriculum organization, instructional strategies and materials, and research findings related to PK-8 science and social studies. **(G)**

480: Principles of Teaching. 0-3-3. Preq., Admission to a teaching program.An investigation of the principles of teaching as related to the student, curriculum, and the teaching-learning process. **(G)**

481: Inclusion Models and Procedures. 6-1-3. A field-based exploration of inclusion models, pupil appraisal, and curriculum designs. **(G)**

482: Strategies and Procedures for Serving Young Children with Special Needs. 0-3-3. Planning, procedures, strategies/assessments for young children with special needs and their families. **(G)**

483: Psycho-educational Assessment of Exceptional Students. 10-2-3. Preq., Admission to a teaching program. An examination of administration and interpretation of basic tests (standardized and criterion-referenced) to make appropriate assessment decisions regarding exceptional students. **(G)**

484: Collaboration and Teaming for Inclusion. 0-3-3. The course provides core components and examples of integrated services, community-school partnership, and family support to enhance quality of life of people with disabilities. **(G)**

485: Assessment and Evaluation of Students with Disabilities. 0-3-3. An examination of administration and interpretation of basic tests (standardized and curriculum-based) to make appropriate educational decisions regarding students with exceptionalities. **(G)**

486: Families of At-Risk Children, Birth Through Preschool. 0-3-3. Preq., Admission to a teaching program. Introduction to research-based strategies, theories, models, and resources for use with families of at-risk and developmentally delayed children, ages 0-5. **(G)**

490: Introduction to Adult Education. 0-3-3. A study of the history, philosophy, objectives and nature of adult and continuing education; emphasis given to the adult as a learner. **(G)**

491: Reading in Adult Education. 0-3-3. Examines the characteristics of the functionally illiterate adult. **(G)**

492: Materials and Methods in Adult Education. 0-3-3. Examination of characteristics unique to the adult with emphasis on analysis of the methods and materials available for working with adults. **(G)**

493: Cross-Cultural Communication for ESL Teaching. 0-3-3. Preq., Senior standing. Concepts of culture and the relationship of language acquisition to the cultural setting with specific application to the teaching of ESL. **(G)**

496: Introduction to the Global_Campus. 0-3-3. (Pass/Fail). Preq., Permission of Instructor. An online course that will provide resources and skills needed to develop and teach a student-centered eLearning course effectively through the Global_Campus.

498: Certificate Completion. No credit. (Pass/Fail). Preq., Post Baccalaureate Standing and Consent of College of Education Undergraduate Director. Required for all students completing a Post Baccalaureate Certificate program.

499: Instructional Strategies and Materials for Teaching Blind Students. 0-3-3. Preq., Admission to a teaching program or consent of instructor. Methods and materials for teachers teaching blind children to read. Students will increase personal Braille reading speed, proficiency, and knowledge of the literary Braille code. **(G)**

500: Research Applications for Teachers and Educational Leaders. 0-3-3. Research techniques as they apply to effective school improvement, in locating and interpreting educational research, in writing in acceptable form, and in evaluating research.

502: Psychoeducational Assessment of Exceptional Students. 2-1-3. Assessment and interpretation procedures for administering and interpreting tests (standardized and criterion-referenced), and making appropriate assessment decisions regarding students with M/M disabilities.

504: Human Exceptionalities: Seminar. 1-2-3. Provides a survey (including legislation, definitions, characteristics, identification, and educational procedures) of student with various exceptionalities.

505: Curriculum Development and Assessment Planning for Teachers. 0-3-3. Application of curriculum research and theory to inform practice; curriculum issues and trends, strategies and techniques for planning curriculum.

510: **Teacher Leadership and Professional Practice I.** 0-3-3. Students will be exposed to conceptual frameworks needed to become effective instructional as well as peer/teacher leaders and to make calculated decisions based on best practice and research-based findings.

511: Teacher Leadership and Professional Practice II. 0-3-3. Participants gain an in-depth knowledge of essential skills needed to become active teacher as well as educational leaders.

517: **Action Research.** 0-3-3. Development and application of professional reflection and action research as a means to teacher enhancement, school change, and teacher empowerment.

520: Practicum for Graduate Students. 4-0-3 (9). Structured laboratory experiences in area(s) of specialization in education. May be repeated for credit up to 9 hours.

521: Assessment of Students and Programs. 0-3-3. Diagnosing and evaluating students and programs within the framework of instruction; emphasis on problem solving in order to improve learning and teaching.

522: Instructional Theory and Practice. 0-3-3. Exploration and investigation of methods and paradigms of instructional theory and delivery; emphasis on creative application of instructional technology and processes that create learning opportunities.

524: Supervision of Student Teaching. 0-3-3. Designed for experienced teachers who are interested in serving as supervising teachers in teacher-education programs.

525: Instructional Theory, Practice, and Assessment. 0-3-3. A study of effective teaching and assessment methods, strategies, and practices.

526: Curriculum Development. 0-3-3. Application of theory and research of curriculum; issues and trends in curriculum; strategies and techniques for planning curriculum; value and empirical bases for curriculum decisions.

528: Evaluating Pupil Growth. 0-3-3. Methods and procedures in test development, administration, validation, and interpretation.

530: Professional Development. 0-3-3. The course is designed to help educational leaders understand the links between sustained, intellectually rigorous staff development and improved teaching and learning.

533: Problems in Education. 1-4 hours credit (9). Preq., Consent of the instructor. An advanced course dealing with special problems in the different fields of education.

540: **Behavior Management of Students with Mild/Moderate Disabilities.** 1-2-3. Preq., EDCI 504 or an equivalent at the undergraduate level. This course is an advanced study of the biological, social, and psychological factors in behavior disorders.

547: Early Intervention in Teaming, Physical/Medical Management for Young Children and Their Families. 0-3-3. Study and application of recommended, evidence-based practices in teaming with families to provide early intervention for young children with special needs including the interrelationships of education, medical, social, and physical disciplines.

548: Communication and Literacy for Young Children At-Risk. 0-3-3. Provides teacher-candidates with knowledge and skills in evidenced-based practices in communication development and literacy skills for young children at risk.

549: Foundations of Early Intervention. 0-3-3. This course focuses on the history, theories, research and application from the fields of both early childhood education and early intervention.

551: Research and Thesis. Three hours or multiples thereof. Maximum credit allowed is six hours.

562: Elementary School Curriculum. 0-3-3. A study of principles of curriculum construction in the elementary school. Emphasis is upon selection, organization and evaluation of materials suitable to the elementary school.

563: Secondary School Curriculum. 0-3-3. A study of the principles of curriculum development in the secondary school.

565: Assessment and Evaluation of Students with Disabilities. 2-3-3. An examination of administration and interpretation of basic tests (standardized and curriculum-based) to make appropriate educational decisions regarding students with exceptionalities.

566: Improving Instruction in Remedial Education. 2-2-3. Focuses on improvement of college level instruction at the remedial/developmental level.

571: Change Theory & Innovation in Education. 0-3-3. Preq., Graduate Standing. A study of change theory and how varying factors and circumstances influence the extent of success or failure of planned innovations in public education.

572: Educational Foundations and Public Policy. 0-3-3. An analysis of the links between educational policy and school history with particular emphasis on the historical, philosophical, social, and legal foundations of education.

575: Practicum in Education. 10-1-3. (Pass-Fail) Preq., Consent of Director of Laboratory Experiences. Structured laboratory experiences in education.

576: Student Teaching. 2-9 hours credit (9). Structured laboratory experinces in area(s) of specialization in education. Minimum of 180 clock hours in direct teaching. May be repeated for up to 9 hours credit.

577: Teaching Methods for Effective Instruction of Science and Social Studies. 2-1-3. A course for the study of curriculum organization, instructional strategies and material, and research findings related to PK-8 science and social studies.

578. Braille II. 0-3-3. Students learn Nemeth and computer braille codes and how to make and teach tactile graphics while increasing proficiency in reading, transcribing, and proofreading literary braille.

579. Developmental Aspects of Blindness, Assessment and Evaluation. 0-3-3. Students learn the physical, social, and emotional development of blind children, birth through adulthood, and the methods used to assess and evaluate these children.

580: Specialist Research and Thesis. Three hours credit or multiples thereof. Maximum credit allowed is six hours.

582: Educational and Functional Implications of Low Vision and Blindness. 0-3-3. An overview course addressing the educational and functional implications of low vision and blindness, including eye anatomy, eye diseases, assessment, and intervention strategies.

584: Orientation and Mobility for Teachers of Blind Students. 2-1-3. Teaches basics of efficient, independent, non-visual travel; movement for young blind children; multi-handicapped blind children and contemporary philosophical issues.

585: Comprehensive Examination in Education. No credit. (Pass/Fail). Graduate standing required. Required for all graduating graduate students enrolled in the MEd, MAT, or MS programs of study in Teacher Education. Requires consent of the College of Education Graduate Director. May be repeated once.

588: Educational Strategies and Methods for Teaching Students with Mild/Moderate Disabilities. 2-3-3. Interventions, methods, materials, and research-based strategies for students with and without disabilities with emphasis on accommodations, modifications, and Individualized Education Programs in inclusive settings.

590: **American Society and Diversity: Issues for Educators.** 0-3-3. An overview and critical analysis of the philosophical, historical, and contemporary issues of diversity in American society and their impacts upon education.

591: National Board for Professional Teaching Standards, Trends, and Issues I. 0-3-3. (Pass/Fail). Experiences and reflections about teaching and learning presented to help participants begin the portfolio preparation process for National Board Certification.

592: National Board for Professional Teaching Standards, Trends, and Issues II. 0-3-3. (Pass/Fail). Preq., EDCI 591. This course is designed to assist all teachers (PK-12) with preparation for certification as a National Board Certified Teacher.

593: Teacher Work Sample (TWS) E-Portfolio. No credit. Preq., Admission to Master of Arts in Teaching program and consent of the program director. Required for all graduating students enrolled in the Master of Arts in Teaching program. (Pass/Fail)

595: SACS CASI Accreditation/School Improvement Process I. 0-3-3. Participants will gain understanding of the SACS CASI Accreditation Standards for Quality Schools and will learn techniques to organize and interpret data, lead school improvement initiatives, and serve as SACS CASI steering committee members.

596: SACS CASI District Accreditation Protocol. 0-3-3. Provides school and district administrators with an in-depth understanding of the SACS CASI school district accreditation process. Participants learn techniques to build a shared vision, develop school and district profiles, design action plans, and interpret the success of both school and district initiatives to further student learning.

597: S.T.A.R. Evaluation and Assessment Protocol. 0-3-3. Designed for experienced teachers who are interested in serving being subject-matter qualified, research-based proficient, technology integrators, and advanced communicators in order to supervise, mentor, and lead teacher candidates in teacher-education programs.

598: Certificate Completion. No credit. (Pass/Fail). Preq., Graduate Standing and Consent of College of Education Graduate Director. Required for all students completing a Graduate Post Baccalaureate Certificate program.

599: E-Portfolio. No credit. (Pass/Fail). Preq., Graduate Standing and Consent of College of Education Graduate Director. Required for all graduating graduate students enrolled in the Master of Science Curriculum and Instruction program or the Master of Arts in Teaching program who began their program Fall 2008 or later. May be repeated.

EDUCATION LEADERSHIP (EDLE)

500: Research Applications for Educational Leaders. 0-3-3. Research knowledge and skills in collecting, analyzing, interpreting and using data to lead school improvement and designing action research.

501: Curriculum Development and Assessment Planning for Educational Leaders. 0-3-3. Application of curriculum research and theory to inform practice; curriculum issues and trends, strategies and techniques for aligning curriculum to state and national standards.

510: Teacher Leadership & Professional Practice I. 0-3-3. Students will be exposed to conceptual frameworks needed to become effective instructional as well as peer/teacher leaders and to make calculated decisions based on best practice and research-based findings to positively impact teaching and learning at the local school site.

511: Teacher Leadership and Professional Practice II. 0-3-3. Foundations laid in the Teacher Leadership and Professionalism I course will be enhanced with an emphasis on technology skills to serve the teacher leader in making the best research-based decisions to effect positive teaching and learning at the local school site.

520: Practicum in Administration and Supervision. 40-0-3. (Pass/Fail). Structured field-based experiences in educational administration and supervision.

527: Public School Organization and Administration. 0-3-3. Introduction to national, state, and local administration; public school finance; principles and practices of administration; administration of special services; national and state legal aspects of public school administration, and administration of school-community relations.

530: Professional Development. 0-3-3. Designed to help educational leaders understand the links between sustained, intellectually rigorous staff development and improved teaching and learning.

531: Supervision of Instruction for School Improvement. 0-3-3. A study of instructional leadership processes, functions, and tasks for effective teaching with particular emphasis on acquisition and assessment of numeracy and literacy skills.

540: Organizational Behavior and Innovation Leadership. 0-3-3. A study of the various elements of organizational behavior in education environments and how they function to mediate planned change and school improvement.

541: Effective Leadership Management. 0-3-3. Duties and responsibilities in finance, business management, organization, leadership, administration and supervision of personnel in elementary/secondary schools.

550: Supervision of Child Welfare & Attendance. 0-3-3. Preq., Graduate status. Principles and practices of census, child welfare, and attendance for the supervisor of child welfare and attendance or visiting teacher.

551: Facilitating School and Community Partnership in Diverse Settings. 0-3-3. This course is designed to familiarize educational administration candidates with the elements of efficient and collaborative school-community relations programs and campaigns for schools and school districts serving diverse educational settings.

552: Supervision of Instruction in Elementary and Secondary Schools. 0-3-3. A course designed to aid prospective elementary and secondary administrators in theories, principles, and concepts of supervision.

553: E-Leadership for School Technology Integration. 0-3-3. This course is designed to enable aspiring education administrators to plan, manage, lead, and sustain effective technology implementation in schools.

555: School and Community Relations. 0-3-3. Principles of school relations applied to education and the development of school and community understandings.

556: School Law. 0-3-3. State and national aspects and implications of public school law. Special attention is given to cases in both state and federal courts.

557: Elementary School Principalship. 0-3-3. Duties and responsibilities in organization, leadership, administration and supervision in the elementary school.

558: Secondary School Principalship. 0-3-3. Duties and responsibilities in organization, leadership and administration of the secondary school.

559: School Finance. 0-3-3. An in-depth survey into the financial and business management in public education.

560: School Personnel Administration. 0-3-3. A course to equip the new principal to administrate all school personnel.

561: School Law, Policy, and Ethics for Educational Leaders. 0-3-3. State and national aspects of school law as well as implications of legal issues, policy, and ethics for educational leaders.

562: Internship in Educational Leadership I. 5-0-1. Structured field-based experiences in educational leadership and supervision. By application only.

563: Internship in Educational Leadership II. 5-0-1. Structured field-based experiences in educational leadership and supervision. By application only.

564: Internship in Educational Leadership III. 5-0-1. Structured field-based experiences in educational leadership and supervision. By application only.

565: Differentiated Supervision. 0-3-3. Focuses on improvement of classroom instruction through the building of the relationship between supervision and teaching.

567: Advanced Topics in Educational Leadership. 0-3-3. (Pass/Fail). This course is designed for prospective or practicing elementary or secondary school administrators and topics vary. May be repeated multiple times for credit.

585: Comprehensive Examination in Educational Leadership. No credit. (Pass/Fail). Graduate standing required. Required for all graduating graduate students enrolled in the MEd or MS programs of study in Educational Leadership. Requires consent of the College of Education Graduate Director. May be repeated once.

593: Leading with Technology for Administrators. 0-3-3. This course is designed to support school administrators in understanding and utilizing technology to impact overall instructional leadership and school improvement.

594: Special Topics in Educational Leadership. (1-4 semester hours credit). Preq., Graduate Standing. Selected topics in an identified area of study in educational leadership in the College of Education. May be repeated for up to 9 hours credit.

599: E-Portfolio. No credit. (Pass/Fail). Preq., Graduate Standing Required and Consent of College of Education Graduate Director. Required for all graduating graduate students enrolled in the Master of Education Educational Leadership program who began their program Fall 2008 or later. May be repeated.

730: Higher Education and the Adult Learner. 0-3-3. This course examines research-based theories and practices of teaching, learning, and assessing the adult learner in higher education.

731: Legal and Cultural Aspects of Higher Education. 0-3-3. This course examines legal issues relevant to American colleges and universities and provides participants with fundamental knowledge of higher education law and operating culture.

732: Institutional Effectiveness and Fiscal Management. 0-3-3. This course examines institutional assessment processes and budget and fiscal management including the assessment, development, and strategic planning for institutions of higher education.

733: Higher Education Governance and Administration. 0-3-3. Preq., Admission to Louisiana Tech University Doctor of Education program. This course focuses on understanding national and state-level factors influencing higher education governance systems and the administration in higher education.

734: Contemporary Issues in Higher Education. 0-3-3. An exploration of American colleges and universities with a focus upon central trends and issues related to academic settings, external forces, and the academic community.

735: Human Resources and Student Services. 0-3-3. An overview of higher education from the perspectives of student identity, student services assessment, and the theoretical foundations of human resource leadership.

736: Organizational Theory and Administration. 0-3-3. This course immerses students in the literature and research on Organizational Theory as it relates to the nature of higher education institutions as organizations.

EDUCATIONAL PSYCHOLOGY (EPSY)

480: Introduction to Orientation and Mobility. 0-3-3. Provides an examination and application of the fundamental principles and theories of orientation & mobility. Students will progress through a graduated travel curriculum. **(G)**

502: Psychosocial and Educational Appraisal of Exceptional Students. 7-1-3. Preq., approval of instructor. Administration and interpretation of specialized individual tests, infant development scales, non-verbal tests for linguistically impaired, verbal tests for sensory handicaps, and accelerated academic assessment.

580: Immersion in Blindness Practicum. 40-0-6. (Pass/Fail). Preq., Enollment by Application Only. Personal experience with blindness; nonvisual techniques, expectations and attitudes at the Louisiana Center for the Blind.

581: Blindness Rehabilitation Systems and Issues. 0-3-3. Presents an overview of rehabilitation history, concepts, programs and services; professional responsibilities and ethics with field experience utilizing techniques for working with rehabilitation agencies, school systems, organizations and public or private programs serving blind and visually impaired individuals.

582: Introduction to Orientation and Mobility. 0-3-3. Preq., EPSY 580. Provides an examination and application of the fundamental principles and theories of orientation & mobility. Students will progress through a graduated travel curriculum.

583: Advanced Orientation & Mobility. 0-3-3. Provides instruction for teaching techniques of independent mobility to individuals who are blind/visually impaired. Curriculum includes strategies and techniques for rural environments, special travel situations, and use of public transportation and applications to daily living vocational environments. Special techniques used by O&M instructors who are blind/visually impaired are emphasized.

584: Internship in Orientation & Mobility. 18-0-6. (Pass/Fail). Preq., EPSY 583, by application only. Intensive experience in teaching Orientation and Mobility skills to visually impaired students. Field experience at a pre-approved site.

585: Comprehensive Examination in Educational Psychology. No credit. (Pass/Fail). Required for all students in educational psychology master's programs. Usually taken in the last term before graduation, but other arrangements may be made under extenuating circumstances.

588: Internship in Rehabilitation Teaching. 30-3-3. (Pass/Fail). Demonstration of student competencies in providing mobility, communications, and other daily living activities instruction to adults who are blind or visually impaired.

599: Master's Thesis. 0-3-3. (6 hours minimum). (Pass/Fail). Original research conducted under the supervision of a departmental faculty member in the student's program area. Student must be enrolled whenever university facilities or faculty are used.

ELECTRICAL ENGINEERING TECHNOLOGY (ELET)

100: Introduction to Electrical Engineering Technology. 3-0-1. A survey of topics to introduce the student to the profession, the department and the curricula.

170: Electrical Circuit Theory I – DC Circuits. 0-3-3. Preq., MATH 101. Introduction to DC circuit theory: mesh and nodal analysis, network theorems, Kirchhoff's Laws, single time-constant transients and Thevenin's and Norton's equivalents for DC circuits. A minimum grade of "C" is required.

171: Electrical Circuits I Laboratory. 3-0-1. Preq. or Coreq., ELET 170. Exercises that demonstrate and reinforce theoretical DC circuit concepts. Skills in component recognition, component value identification and proper test equipment usage are emphasized.

180: Electrical Circuit Theory II – AC Circuits. 0-3-3. Preq., ELET 170 and MATH 112. An extension of concepts developed in ELET 170 to include sinusoidal steady-state analysis of alternating current circuits. A minimum grade of "C" is required.

181: Electrical Circuits II Laboratory. 3-0-1. Preq or Coreq., ELET 180. Exercises that demonstrate and reinforce theoretical AC circuit concepts. The proper use of AC test equipment is emphasized.

260: Electronic Circuit Theory I. 0-3-3. Preq., ELET 180. An introductory treatment of solid-state devices emphasizing the junction diode, bipolar junction transistor and the field effect transistor. A minimum grade of "C" is required.

261: Electronic Circuits Laboratory I. 3-0-1. Preq. or Coreq., ELET 260. Exercises demonstrating theoretical electronic circuit concepts. Skills are developed in component identification and specification, circuit assembly, schematic interpretation, test equipment usage and troubleshooting.

268: Electrical Projects Laboratory. 3-0-1. Preq., ELET 260. Introduction to project development concepts via assigned and student-selected topics. Soldering, troubleshooting and the practical use of test equipment are emphasized.

270: Instrumentation. 0-3-3. Preq., ELET 180. An introduction to measurement methods and the principles of operation of sensors and actuators used in open-loop and closed-loop control systems.

271: Instrumentation Laboratory. 3-0-1. Preq. or Coreq., ELET 270. The study of electrical and electronic instrumentation, used in measurement and control.

272: Electronic Circuit Theory II. 0-3-3. Preq., ELET 260. Continuation of ELET 260. The study of semiconductor devices and circuits; applications of these circuits in practical situations.

273: Electronic Circuits II Laboratory. 3-0-1. Preq. or Coreq., ELET 272. Exercises that demonstrate and reinforce electronic circuit concepts. Further development of skills in electronic circuit construction, component identification and troubleshooting.

280: Electrical Power I – Industrial Power Distribution. 0-3-3. Preq., ELET 180. Electrical power generation, transmission and distribution systems. Equipment requirements and characteristics. Design fundamentals of typical electrical installations. A minimum grade of "C" is required.

360: Electrical Power II – Electro-mechanical Power Conversion. 0-3-3. Preq., ELET 280. The theory of operation and equivalent circuits of transformers; DC generators and motors; AC synchronous generators and motors and AC induction motors.

361: Electro-mechanical Power Conversion Laboratory. 3-0-1. Preq., ELET 360. Exercises that demonstrate and reinforce the operating characteristics of power transformers; AC and DC motors; AC and DC generators and solid-state power conversion equipment.

370: Introduction to Digital Circuits. 0-2-2. Preq., ELET 260. An introduction to digital circuit fundamentals: binary numbers, Boolean algebra, truth tables, combinational logic and logic minimization. Operation of logic circuits and sequential digital circuits.

371: Introduction to Digital Circuits Laboratory. 3-0-1. Preq. or Coreq., ELET 370. Exercises that demonstrate the operation and use of basic logic circuits and an assortment of sequential digital circuits. Solid-state, integrated devices are emphasized.

374: Introduction to Microcontrollers. 0-2-2. Preq., ELET 260. Coreq., ELET 375. Introduction to microcontroller organization, operation, data manipulation, programming, register level operations and device interfacing.

375: Microcontrollers Laboratory. 3-0-1. Coreq., ELET 374. Practical exercises in microcontroller data manipulation, programming and device interfacing.

380: Printed Circuit Board (PCB) Design and Fabrication. 3-2-3. Preq., ELET 260. An introduction to PCB layout software and the milling machine hardware used to fabricate prototype PCBs.

390: Electrical Drafting. 3-2-3. Preq., ELET 272 and 370. An introduction to computer aided drafting (CAD). CAD creation of schematic diagrams, wiring diagrams and instrument loop diagrams is emphasized.

422: Control Systems I – Discrete I/O Systems. 0-3-3. Preq., ELET 370. Coreq., ELET 423. Application of the programmable logic controller (PLC) as a control device in two-state input/output control systems. Relay ladder logic programming is emphasized.

423: Control Systems I Laboratory. 3-0-1. Coreq., ELET 422. An introduction to programmable logic controller (PLC) hardware and programming software. PLC programming and application skills are developed through practical exercises.

460: Digital Data Communication Networks. 0-3-3 Preq., ELET 260. The study of systems used in communicating digital data. LANs and WANs.

461: Digital Data Communication Laboratory. 3-0-1. Preq. or Coreq., ELET 460. Practical exercises that demonstrate and reinforce classroom material. Installation and administration of a LAN.

470: Control Systems II – Analog Systems. 0-3-3. Preq., ELET 272 and MATH 223. An introduction to linear feedback control systems including transient response analysis, stability, steady-state error analysis and system response modification.

471: Control Systems II Laboratory. 3-0-1. Preq., ELET 470. Practical laboratory exercises that investigate the time responses, stability, and controller tuning of first- and second-order physical systems.

472: Professionalism and Ethics for Electrical Engineering Technology. 0-1-1. Preq., senior standing. Cultural and social diversity issues; professional behaviors, and ethical standards applicable to professional practice. Current job market and other employment related topics are also addressed.

475: Capstone Design I. 3-0-1. Preq., Permission of the Instructor, and Senior standing. A self-directed student project incorporating practical skills and technical knowledge derived from the entire curriculum. A minimum grade of "C" is required.

476: Capstone Design II. 3-0-1. Preq., ELET 475. A continuation of ELET 475. Students apply program-acquired knowledge and practical skills to a problem-solving/project-management scenario. A minimum grade of "C" is required.

477: Capstone Design III. 3-0-1. Preq., ELET 476. Continuation of ELET 476. Terminal capstone course in which students apply program-acquired knowledge and practical skills to a student-directed problem solving/project management scenario.

490: Special Problems Laboratory. 3-0-1. Preq., Permission of the Instructor. A laboratory course for covering a selected topic of relevant interest. May also be utilized for special project assignments.

490A: Special Problems. 0-1-1. Preq., Permission of the Instructor. A course for covering a selected topic of relevant interest. May also be utilized for special project assignments.

490B: Special Problems. 0-2-2. Preq., Permission of the Instructor. A course for covering a selected topic of relevant interest. May also be utilized for special project assignments.

490C: Special Problems. 0-3-3. Preq., Permission of the Instructor. A course for covering a selected topic of relevant interest. May also be utilized for special project assignments.

ELECTRICAL ENGINEERING (ELEN)

223: Electrical Circuits II. 0-3-3. Preq., ENGR 221 Steady-state and transient analysis of circuits. Computer solution of circuits. Operational amplifiers.

224: Electrical Circuits III. 0-3-3. Preq., ELEN 223 and credit or registration in MATH 245. Single-phase and polyphase circuits. Magnetically coupled circuits. Two-port networks. Fourier circuit analysis and Laplace transforms.

229: Electrical Circuits Laboratory. 3-0-1. Preq., ELEN 224. Computer methods, instruments, devices, and design for measurements in electrical networks.

232: Introduction to Digital Design. 3-1-2. Preq., credit or registration in Math 242. Introduction to digital design techniques, Boolean algebra, combinational logic, minimization techniques, simple arithmetic circuits, programmable logic, sequential circuit design, registers and counters.

242: Introduction to Microprocessors. 3-2-3. Preq., ELEN 232. Introduction to microprocessor organization and operation, data manipulation, assembly and/or embedded-C language programming, and device interfacing.

243: Computer Programming. 0-1-1. The logic of computer solutions to problems. Basic programming utilizing a higher level programming language. Applications of computer usage in Electrical Engineering. Also listed as ELET 274.

292: Electrical Engineering Computer Applications. 0-2-2. Preq., credit of registration in MATH 245. Application of modern computer programming principles to electrical engineering problems. Numerical solutions of linear and nonlinear algebraic equations, numerical quadrature problems, and ordinary differential equations.

311: Introduction to Electric & Magnetic Fields. 0-2-2. Preq., PHYS 202, cumulative GPA$\geq$ 2.0 for Math 240 through Math 244. Vector analysis, Coulomb's and Gauss' Law. Electric field streamlines. Energy and potential. Conductors, dielectrics and capacitance. Poisson's and Laplace's equations. Steady magnetic fields.

321: Linear Systems. 0-3-3. Preq., ELEN 224, MATH 245. Fourier Series. Fourier Transform. Laplace Transform. Convolution and the system function. Filters. State variable representation and solution.

322: Digital Signal Processing. 0-3-3. Preq., ELEN 321. Discrete signals, LTI systems, discrete Fourier analysis, discrete filters, sampling, Z-transforms.

334: Solid State Electronics. 0-3-3. Preq., ENGR 221, MATH 244, and PHYS 202. Fundamentals of solid state electronic materials and devices, emphasizing semiconductors and principles of operation of ULSI devices.

335: Electronic Circuits I. 0-3-3. Preq., ELEN 224. Circuit-level behavior of diodes, bipolar transistors, field-effect transistors, and operational amplifiers. Analysis and design of linear amplifiers. Frequency domain characterization of transistor circuits.

336: Electronic Circuits II. 0-3-3. Preq., ELEN 335. Advanced transistor amplifier analysis and design. Design of op-amps, active filters, oscillators, A/D and D/A converters, and power converters. Transistor level design of CMOS circuits.

339: Electronic Circuits Laboratory. 3-0-1. Preq., credit or registration in ELEN 336. Laboratory design, simulation, and testing of electronic circuits using diodes, transistors, integrated circuits, and passive components.

381: Electrical Machinery. 0-3-3. Preq., ELEN 224. Electromagnetic energy storage and conversion. Principles of electromechanical energy conversion. Power transformers. Design of electromechanical devices. Analysis of rotating machines.

406: Electrical Engineering Design I. 3-0-1. Preq., ELEN 321, 322, 336, 339, 411, and senior standing. Design problems requiring the integration of circuits, electronics, field theory, controls, energy conversion, power systems, and economics.

407: Electrical Engineering Design II. 3-0-1. Preq., ELEN 406. A laboratory for the continuing development of the senior design project started in ELEN 406.

408: Electrical Engineering Design III. 3-0-1. Preq., ELEN 407. A laboratory for the continuing development and implementation of the senior design project started in ELEN 406 and continued in ELEN 407.

411: Electric and Magnetic Fields. 0-3-3. Preq., ELEN 311. Ampere's Circuit Law. Magnetic flux and potential. Magnetic forces, materials and inductance. . Time-varying electromagnetic fields and Maxwell's equations. Plane waves. Transmission lines. Design of impedance-matching devices. Waveguide and antenna fundamentals.

423: Embedded Systems. 3-2-3. Preq., ELEN 242. Assembly and C programming on a customizable microprocessor implemented on an FPGA board. Verilog components, RTOS, debugging techniques, state machines, software revision control, DSP programming.

433: Optoelectronics. 0-3-3. Preq., ELEN 311 or ELEN 334. Light Polarization, absorption, dispersion, emission, reflection and refraction. Gaussian beam. Lasers, light emitting diodes, photodetectors, solar cells, optical waveguides, and fibers. Surface plasmons.

437: Fundamentals of Microfabrication Processes. 0-3-3. Preq., MATH 245 and PHYS 202. Study of microfabrication processes including patterning, additive, and etching processes used for the realization of microelectronic ultra large scale integration (ULSI) and microelectromechanical systems (MEMS) technologies.

438: Microelectronic Applications & Device Fabrication. 3-2-3. Preq., ELEN 437. Microfabrication process integration and applications to the realization of ULSI and other technologies.

439: Microfabrication Laboratory. 3-0-1. Coreq., ELEN 437. Laboratory experience in the fabrication of a microelectronic or microelectromechanical device using a variety of microfabrication processes.

450: Selected Topics. 0-2-2. Preq., permission of instructor. Work in an area of recent progress in electrical engineering of immediate interest or need. Topic selected will vary from term to term.

451: Special Topics. 0-3-3. Preq., permission of instructor. Study in an area of recent progress in electrical engineering of immediate interest or need. Topic selected will vary from term to term.

461: Communication Systems. 0-3-3. Preq., ELEN 322. Analog and digital communication systems. Random signals, noise, and filetering. Physical constraints. Multiplexing. Properties of AM, FM, PSK, and QAM systems. **(G)**

462: Digital Communication Systems. 0-3-3. Preq., ELEN 461. Analysis and design of digital communication systems. Signals and spectra. Digital base band and carrier systems,. digital networks, introduction to emerging technologies.

463: Optical Communication Systems. 0-3-3. Preq., ELEN 411. Optical waveguides, mode theory and ray optics. Transmission losses and signal distortion. Optical sources, detectors and transmission link analysis. **(G)**

469: Communications Laboratory. 3-0-1. Credit or registration in ELEN 461. Communications laboratory to accompany ELEN 461. Fourier Spectrum, AM systems, FM systems, and Time Division Multiplex.

471: Automatic Control Systems. 0-3-3. Preq., ELEN 321, MATH 244. Analysis and design of linear feedback systems. Mathematical modeling. Transfer functions and signal-flow graphs. State variable analysis. Time domain analysis and design of linear control systems. Frequency domain analysis and design of linear control systems.

472: Introduction to Digital Control. 0-3-3. Preq., ELEN 471. An introduction to the theory of linear discrete control systems. Time-domain analysis of discrete systems. Z-transform. Sampling. Discrete-time signal analysis. Sampled data control systems.

479: Automatic Control Systems Laboratory. 3-0-1. Credit or registration in ELEN 471. Laboratory design, simulation and testing of automatic control systems.

481: Power Systems. 0-3-3. Preq., ELEN 411. Per-unit notation. The design and analysis of balanced power systems including load flow, economic dispatch, short circuit and over current device coordination and control of watts and vars. **(G)**

482: Power Systems Design and Analysis. 0-3-3. Preq., ELEN 481. Review of three-phase short circuits. Symmetrical components. Analysis of power systems in the transient state. Control of frequency and power flow in interconnected systems. **(G)**

483: Motor Control. 0-3-3. Preq., ELEN 481. Speed control. Reduced voltage starting techniques. Classical relay ladder logic. Modern programmable logic control device applications. Power electronic applications.

489: Power Systems Laboratory. 3-0-1. Preq., credit or registration in ELEN 481. Laboratory design, simulation, and testing of electric power devices, machines, and systems.

512: Electromagnetic Waves. 0-3-3. Preq., ELEN 411. Propagation, reflection and refraction of electromagnetic waves. Guided waves and power flow. Boundary-value problems.

525: Telecommunication Theory and Application. 0-3-3. Emphasis on the physical and data link layers of the OSI model. Topics include modulation, utilization, multiplexing, impairments, and protocols on LANs, MANs and WANs.

526: Modern Wireless and Optical Networking. 0-3-3. Overview of wireless and optical networking (at all layers of the OSI model). Topics include: 4G, FTTx, OFDMA, software-defined-radio, ROADM, optical packet and burst switching.

527: Optical Communication Systems. 0-3-3. Optical telecommunication system performance issues and enabling technologies. Shot noise mitigation, dispersion compensation, reduction and exploitation of nonlinearities. Next generation optical networks, sources and detectors.

533: Optoelectronics. 0-3-3. Preq., Permission of instructor. Modulation of light, display devices, lasers, photodetectors, optical transistors, logic gates, Waveguides, transmitter and receiver design.

535: Advanced Topics in Microelectronics. 0-3-3. Preq., consent of instructor. Selected topics of current research interest in the field of microelectronics.

537: Advanced Microfabrication with Computer-Aided Design. 0-3-3. Preq., ELEN 438. Advanced microfabrication process development and integration with the aid of computer process modeling and simulation.

538: Advanced Microelectronic Devices with Computer-Aided Design. 0-3-3. Preq., ELEN 537. Principles of operation and analysis of advanced microelectronic devices with the aid of computer device modeling and simulation.

550: Special Problems. 1-4 semester hours. Preq., consent of instructor. Advanced problems in electrical engineering. The problems and projects will be treated by current methods used in professional practice.

551: Research and Thesis in Electrical Engineering. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

555: Practicum. 0-3-3 (6). (Pass/Fail). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques

557: Special Topics: Electrical Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of electrical engineering. May be repeated as topics change.

561: Random Signals and Systems. 0-3-3. Preq., ELEN 461 and 471. Random signal analysis. Correlation and power spectrum analysis. Stochastic communication and control systems.

565: Digital Signal Processing. 0-3-3. Preq., ELEN 461. Review of discrete linear signals and systems theory. Design/Implementation of FIR and IIR digital filters. Quantization and finite word length effects. Spectrum estimation.

566: Estimation Theory. 0-3-3. Preq., ELEN 561. Estimation, based on noise-corrupted observations, of unknown system states. Maximum-likelihood and least square estimation; matched filters. Wiener and Kalman filtering.

567: Wireless Sensor Networks. 0-3-3. Topics Include: Introduction to wireless sensor networks, networks, topology, routing, graph theory, hardware components, layered network architecture, coverage and connectivity, localization and tracking, network platforms.

572: Digital Control Systems I. 0-3-3. Preq., ELEN 471. Sampling Theory. Date reconstruction. Z-transforms. Stability analysis. Time-domain analysis. Frequency domain analysis. Introduction to Digital Control Systems.

573: Digital Control Systems II. 0-3-3. Preq., ELEN 572 or consent ot instructor. Review of Z-transforms. State variable techniques. Controllability and observability. Design of digital control systems with state variable techniques. Digital state observer. Microprocessor control.

575: Nonlinear Systems. 0-3-3. Topics Include: Introduction to nonlinear systems, equilibrium points, phase-plane analysis, limit cycles, examples of nonlinear systems, Lyapunov stability, feedback linearization, nonlinear observers, adaptive control.

581: Computer Applications to Power Systems. 0-3-3. Preq., ELEN 481. The study of algorithms for power network matrices, three-phase networks, fault, load flow and stability problems solution by computer methods.

582: Motor Control and Power Electronics. 0-3-3. Preq., ELEN 481. Electronic and electromagnetic motor control devices; programmable controllers; motor protection; solid state power device application to DC and AC power conversion.

ENGINEERING (ENGR)

120: Engineering Problem Solving I. 3-1-2. Coreq., MATH 240, CHEM 100. The engineering profession, engineering problem solving, computer applications.

121: Engineering Problem Solving II. 3-1-2. Preq., ENGR 120; Coreq., MATH 241, CHEM 101. Introduction to engineering design, engineering problem solving, computer applications.

122: Engineering Problem Solving III. 3-1-2. Preq., ENGR 121; Coreq., MATH 242. Engineering design, engineering problem solving, computer applications.

189: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

194: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

220: Statics & Mechanics of Materials. 3-2-3. Preq., ENGR 122, PHYS 201, MATH 242. Resultants and equilibrium of force systems, stress and strain, truss and frame analysis, torsion, bending.

221: Electrical Engineering and Circuits I. 3-2-3. Preq., ENGR 122, MATH 242, and PHYS 201. Fundamental concepts, units and laws. Network theorems, network simplification, phasors and AC solution of circuits, power and electronic applications.

222: Thermodynamics. 3-2-3. Preq., ENGR 122, MATH 242. Fundamental concepts, properties of pure substance, work, heat, first and second laws of thermodynamics, entropy, cycle analysis.

289: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

294: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

299: Cooperative Education Applications. 40-0-1 (7). Preq., Admission to the College of Engineering and Science Cooperative Education Program.

300: European Influence on Engineering. 7-1-3. Preq., Sophomore standing or consent of instructor. European influence on Engineering theory and practice. Engineering accomplishments in Europe. Impact of engineering on western civilization.

389: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

394: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

420: Leadership Concepts and Skills for Engineers and Scientists. 0-1-1. Students will identify and discuss the concepts, principles and skills that characterize leaders in engineering and science practice.

421: Leadership Context for Engineers and Scientists. 0-1-1. Students will identify and discuss the historical, societal, global, economic and ethical context impacting leaders in engineering and science.

422: Leadership Challenges for Engineers and Scientists. 0-1-1. Students will identify and discuss the challenges, public policy, technology, and human resource issues facing leaders in engineering and science.

456: Engineering & Science Internship. 40-0-3 (6). (Pass/Fail). Preq., Consent of advisor and Program Chair is required. (Approval based on relevance of proposed internship to degree program.) On-site, supervised, structured work experience. This course may be taken to facilitate a three month off-campus work experience. May be repeated for credit once (for a total of 6 sch). **(G)**

480: Multidisciplinary Capstone Design I. 3-0-1. Open-ended, team-based multidisciplinary design project that draws on student's entire academic experience with emphasis on idea generation and conceptural design.

481: Multidisciplinary Capstone Design II. 3-0-1. Preq., ENGR 480 with minimum grade of "C". Continuation of ENGR 480 with emphasis on prototyping detailed system design.

482: Multidisciplinary Capstone Design III. 3-0-1. Preq., ENGR 481 with minimum grade of "C". Continuation of ENGR 481 with emphasis on construction and testing.

489: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

494: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science. May be repeated for credit.

501: Engineering Research Methods. 0-3-3. An overview of the general methods used in engineering research, design of experiments, data analysis, proper record keeping, communication of research findings, and ethical issues.

510: Introduction to Engineering & Science Research Methods. 0-2-2. An overview of the general methods used in engineering and science research, including literature search, hypothesis generation and testing, problem exploration, communication of research findings, and ethical issues.

511: Engineering & Science Research Proposal Development. 0-1-1. The course will guide students through all the steps involved in preparing a research proposal, from topic identification, literature review, design of experiments, data analysis, proper record keeping, and project planning.

530: Engineering Experimentation and Research. 4-2-3. Preq., Working knowledge of statistics. The purpose of this course is to prepare graduate students to conduct experimental research. This interdisciplinary course introduces students to the topics needed in order to design experiments and measurement systems successfully.

541: Mathematical Methods for Engineering. 0-3-3. Advanced mathematical methods commonly used in various branches of engineering, such as complex analysis, linear algebra, differential equations, Fourier series, and variational methods.

550: Directed Interdisciplinary Study in Engineering. 1-3 hours credit (6). Directed in-depth study of a topic under the direction of a graduate faculty member. Maximum total credit applied towards degree is 6 hours.

551: Interdisciplinary Research and Thesis in Engineering. 3-6 hours credit. Preq., 12 semester hours of graduate courses. Registration in any quarter may be for 3 semester hours or multiples thereof. Maximum total credit applied towards degree is 6 hours. (Pass/Fail)

554: Modern Energy Grand Challenges. 0-3-3. Survey of energy topics in science and engineering disciplines. Includes energy technology, policy, economics, history, and forecast trends with empahasis on current research activities.

555: Interdisciplinary Practicum in Engineering. 0-0-3. Preq., 12 semester hours of graduate courses. Analytical, experimental, and/or computational solution of an engineering problem. Maximum total credit applied towards degree is 3 hours. (Pass/Fail)

566: Six Sigma and Quality Control. 0-3-3. Principles of quality as applied to engineering processes. Applications to the engineering workplace and industrial/academic research will be emphasized.

570: Graduate Professional Development Seminar. 0-1-1. Required for MS/Engineering and MS/Computer Science students in the non-thesis option. The seminar will concentrate on topics aimed at preparing beginning graduate students to successfully navigate the demands of graduate school and become productive professionals.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Engineering and Science.

590: Application of Artificial Intelligence Techniques. 3-2-3. Preq., Permission of instructor. Introduction to artificial intelligence agents and technologies and their applications in industrial, mechanical, and manufacturing engineering systems.

592: Engineering Computational Methods. 0-3-3. Preq., Consent of instructor. Solution of linear and nonlinear systems of equations, roundoff errors, stability, convergence, interpolation and extrapolation, finite difference, approximation of functions, DFT/FFT radix 2, random numbers.

594: Special Topics. 1-4 hours credit. Selected topics in an identified area of study in the College of Engineering and Science.

610: Doctoral Seminar in Engineering. 0-3-3 (3). (Pass/Fail). Required for PhD Engineering students each Fall. The seminar will cover research methodology, issues in graduate education, and presentations on current research by faculty, doctoral students, and distinguished visitors. Only 3 semester hours will apply toward the candidates plan of study.

622: The Academic Enterprise. 0-1-1 (2). Topics include college teaching, proposal preparation and research, scholarly activities, service, record keeping, and maintaining balance between professional and personal life. May be repeated for credit.

631: Global Competitiveness and Management of Technology. 0-3-3. Preq., Consent of instructor. Principles of technology development and management in a global context, and their applications in the planning and implementation of new technological capabilities.

641: Formulation of Solutions to Engineering Problems. 0-3-3. Preq., Consent of instructor. Approaches used to formulate solutions to physical engineering problems, mathematical representation of physical laws, boundary value problems, variational methods, common mathematical approaches to solutions, approximate solutions, validity of solutions.

650: Directed Study in Engineering. 1-3 hours of credit (6). Directed in-depth study of a highly specialized topic. Topics and course policies to be established by instructor for each student.

651: Research and Dissertation. (Pass/Fail). Doctoral students only. Registration in any quarter is for 3 semester hours or multiples thereof, up to a maximum of 9 semester hours per quarter. Maximum credit applicable towards the degree is 30 semester hours.

657: Selected Topics in Engineering. 0-3-3. The topic or topics will be selected by the instructor from a specialized area of engineering.

685: Doctoral Qualifying Examination. No credit. (Pass/Fail). Required for all students seeking to take the qualifying examination for the PhD in Engineering. Successful completion is a prerequisite for admission to candidacy.

686: Oral Comprehensive Examination. No credit. (Pass/Fail). Required for all students seeking to take the oral comprehensive examination for the PhD in Engineering. Successful completion is a prerequisite for admission to candidacy.

ENGLISH (ENGL)

099: Preparation for College English. 0-3-3. Required if English ACT score is 17 or below, or Verbal SAT score is less than 440. Grammar, punctuation, spelling, and vocabulary, with the development of writing skills. Special emphasis on the sentence and paragraph. (Pass/Fail)

101: Freshman Composition I. 0-3-3. Preq., English ACT score is greater than or equal to 18, or Verbal SAT score is greater than or equal to 450. Standard course for first-year college students; the three stages of writing (prewriting, writing, and revision); writing essays in various modes; grammar review. Master Course Articulation Matrix* [LCCN: CENL 1013]

102: Freshman Composition II. 0-3-3. Preq., ENGL 101. Continues work of Composition I; includes preparation of a research paper from multiple academic sources. Master Course Articulation Matrix* [LCCN: CENL 1023]

105: Freshman Composition I for International Students. 0-3-3. Preq., English score is greater than or equal to 18, or Verbal SAT score is greater than or equal to 450 or TOEFL score is 71 or greater or completion of ELS 112. Same as ENGL 101, with emphasis on usage and idiom issues specific to international students.

210: Introduction to British Literature, Beginnings to Romantic Era. 0-3-3. Preq., ENGL 102. Satisfies Humanities GER Literature requirement and is a prerequisite for advanced courses in British literature. Statewide Transfer Agreement Course.* [LCCN: CENL 2103]; [LCCN: CENL 2123]

211: Introduction to British Literature, Romantic Era to the Present. 0-3-3. Preq., ENGL 102. Satifies Humanities GER literature requirement and is a prerequisite for advanced courses in British literature. Statewide Transfer Agreement Course.* [LCCN: CENL 2113]; [LCCN: CENL 2123]

212: Introduction to American Literature. 0-3-3. Preq., ENGL 102. Satisfies Humanities GER literature requirement and is a prerequisite for advanced courses in American literature. Statewide Transfer Agreement Course.* [LCCN: CENL 2153]; [LCCN: CENL 2163]; [LCCN: CENL 2173]; [LCCN: CENL 2403]

303: Technical Writing. 0-3-3. Preq., ENGL 102. Development of technical writing skills and styles; various technical writing assignments, including a technical report.

307: Contemporary Literary Theory and Criticism. 0-3-3. Preq., ENGL 211 and 212. A study of the major 20th century theoretical approaches to literature.

308: The Short Story. 0-3-3. Preq., ENGL 210, 211, or 212. Study of the form and development of the short story.

325: Contemporary English and American Poetry. 0-3-3. Preq., ENGL 210, 211, or 212.

332: Advanced Grammar. 0-3-3. Preq. ENGL 102. Study of descriptive grammar with some prescriptive grammar and introduction to transformational grammar.

336: Advanced Composition. 0-3-3. Preq., ENGL 102. Writing longer essays in various rhetorical modes, with attention to appropriate writing styles.

363: Scientific and Technical Presentations. 0-3-3. Preq., ENGL 303. Presenting technical information to specialized and non-technical audiences; emphasis on organization, support, and clarity of presentation; effective use of visual materials.

384: Introduction to Creative Writing. 0-3-3 (6). Preq., ENGL 102, ENGL 332 or instructor's permission. Introduction to traditional and contemporary forms of short fiction and poetry through study of selected models. Students required to write in both genres. May be repeated.

400: Theories of Composition. 0-3-3. A course designed to familiarize prospective English teachers with theories of teaching composition. **(G)**

402: Women Writers. 0-3-3. Preq., ENGL 212. Study of the development and varieties of women's writing. **(G)**

403: Chaucer. 0-3-3. Preq., ENGL 210. **(G)**

404: Milton. 0-3-3. Preq., ENGL 210. **(G)**

406: World Masterpieces. 0-3-3. Survey of major non-English literary texts in the Western Tradition. **(G)**

408: American Poetry. 0-3-3. Preq., ENGL 212. Study of major poets from the Puritans to the contemporary period. **(G)**

409: American Fiction of the Nineteenth Century. 0-3-3. Preq., ENGL 212. Study of the rise of American fiction through Henry James. **(G)**

410: The Eighteenth-Century British Novel. 0-3-3. Preq., ENGL 211. Study of the rise of the British novel from its inception to the end of the 18th century. **(G)**

411: The Nineteenth-Century British Novel. 0-3-3. Preq., ENGL 211. Study of the development of the British novel from Austen to the end of the nineteenth century. **(G)**

412: The Twentieth-Century British Novel. 0-3-3. Preq., ENGL 211. Study of the development of the British novel from the Edwardian Period to the present. **(G)**

413: The Romantic Period. 0-3-3. Preq., ENGL 211. Study of the major writers of the age. **(G)**

414: The Victorian Period. 0-3-3. Preq., ENGL 211.Study of the major writers of the age. **(G)**

415: Shakespeare. 0-3-3. Preq., ENGL 210 or 211. The major plays and the poems. (Same as SPTH 415.) **(G)**

421: Classical Theory and Rhetoric. 0-3-3. Survey of the development of rhetoric from Ancient Greece and Rome to current theories and practice. **(G)**

422: The English Language. 0-3-3. Primarily a course in the history of the language. **(G)**

424: Southern Literature. 0-3-3. Preq., ENGL 212. Study of the works of writers who have interpreted the American South, with emphasis on the authors of the Southern Renaissance. **(G)**

426: Spanish Literature in English Translation. 0-3-3 (6). Representative works of Spanish literature from the Middle Ages to the 20th century; repeatable for credit with different course content. May not be counted towards a major or minor in Spanish. Also listed as SPAN 426. **(G) (IER)**

427: Latin American Literature in English Translation. 0-3-3 (6). Representative works of 20th-century Latin American literature; repeatable for credit with different course content. May not be counted towards a major or minor in Spanish. Also listed as SPAN 427. **(G) (IER)**

428: French Literature in English Translation. 0-3-3 (6). Representative works of French literature from the Middle Ages to the 20th century; repeatable for credit with different course content. May not be counted towards a major or minor in French. Also listed as FREN 428. **(G) (IER)**

429: American Fiction of the Twentieth Century. 0-3-3. Preq., ENGL 212.Study of the "American Century" as reflected in representative novels and short stories. **(G)**

430: African American Literature. 0-3-3. Preq., ENGL 212.Study of the development of African American writing, with emphasis on the period from the Harlem Renaissance to the present. **(G)**

434: American Literature: Beginnings to 1865. 0-3-3. Preq., ENGL 212. Study of American literature from the Colonial Period through the Civil War. **(G)**

435: American Literature: 1865 to World War II. 0-3-3. Preq., ENGL 212. Study of American literature from Reconstruction through World War II. **(G)**

436: American Literature: World War II to the Present. 0-3-3. Preq., ENGL 212. Study of American literature from World War II to the present. **(G)**

437: Medieval English Literature (excluding Chaucer). 0-3-3. Preq., ENGL 210. Study of the variety and themes of English literature from its beginnings to the sixteenth century, excluding Chaucer. **(G)**

438: Sixteenth Century English Literature (excluding Shakespeare). 0-3-3. Preq., ENGL 210. **(G)**

439: Seventeenth Century English Literature (excluding Milton). 0-3-3. Preq., ENGL 210. **(G)**

440: Eighteenth Century English Literature. 0-3-3. Preq., ENGL 210. **(G)**

450: Capstone Course. 0-1-1. Preq., Senior Standing. Issues important to English majors, including job opportunities, graduate school requirements, and marketing oral and written communication skills.

452: The Literature of the Bible. 0-3-3. A survey of literary genres of the Old and New Testaments, focusing on the poetic and/or narrative art of each. **(G)**

455: Modern British Literature. 0-3-3. Preq., ENGL 211 or 212. Study of the poetry, plays, and fiction from the early 20th century to World War II. **(G)**

456: Contemporary British Literature. 0-3-3. Preq., ENGL 211 or 212. Study of the poetry, plays, and fiction from World War II to the present. **(G) (IER)**

459: Technical Writing and the Scientific Method. 0-3-3. Preq., ENGL 303. Study of scientific thought, methodologies, and rhetorical strategies; application to style and structure in technical discourse. **(G)**

460: Advanced Technical Writing. 0-3-3. Preq., ENGL 303. Emphasis on longer reports and specialized forms of technical writing, such as manuals. **(G)**

461: Technical Writing for Publication. 0-3-3. Preq., ENGL 303. Writing articles for scientific and technical journals, with emphasis on audience analysis and appropriate style.

462: Technical Editing. 0-3-3. Preq., ENGL 303. The work of an editor, including editing a text, planning projects, and working with authors, illustrators, and production workers.

464: Occupational Technical Writing. 0-3-3. Preq., ENGL 303. Preparing the technical writer to plan and conduct training sessions within the organization and to supervise others engaged in writing tasks.

465: Specification, Bid, Grant, and Proposal Writing. 0-3-3. Preq., ENGL 303. Writing specifications, bids, grants, and proposals; emphasis on audience analysis, organization, and writing style.

466: Technical Writing Internship. 9-0-3 (6). Preq., ENGL 303 and permission of Department Head. On-the-job experience for the technical writing student; intended to give supervised practice under realistic working conditions. Internships are to be arranged individually.

467: Special Problems in Technical Communication. 3 hours credit (6). Preq., Permission of Department Head. The selection, study and writing of special problems. Students will work on individual projects under direct supervision. **(G)**

468: Readings in Scientific and Technical Communications. 0-3-3. Preq., ENGL 303. Study of the current material written about technical communication, with a reading and critical analysis of various technological journals.

469: Graphics in Technical Writing. 0-3-3. Preq., ENGL 303. Theory and practice of illustrating texts, with emphasis on electronic media to integrate nonverbal and written materials.

475: Special Topics. 0-3-3 (6). Seminar with topic to be designated by the instructor. May be repeated once with different topic. **(G)**

480: Science Fiction. 0-3-3. Study of science fiction within the context of modern literature, including short stories, novels, and films. **(G)**

482: Folklore Studies. 0-3-3. Preq., ENGL 102. Study of folklore theory and genres in culture and literature with topics ranging from verbal arts to ritual and belief. **(G)**

484: Advanced Creative Writing. 0-3-3 (6). Preq., ENGL 384 or instructor's permission. Workshop format includes intensive criticism of student writing in short fiction or poetry with emphasis on submission for publication. May be repeated with different genre. **(G)**

491: Advanced Expository Writing. 0-3-3. Writing essays and reports for professional publication; focus on style, format, and editing manuscripts. **(G)**

500: Teaching College Composition. 0-3-3. Preparation for teaching Developmental English and Freshman English; includes theory, research, technology, and pedagogy related to college composition.

515: Shakespeare Seminar. 0-3-3 (6). Preq., ENGL 415 or its equivalent. Study of Shakespeare texts and background writings of the Elizabethan and Jacobean Periods; repeatable once for credit with different instructor and/or course content.

520: Seminar in Composition. 0-3-3 (6). Selected reading and research topics in composition studies; repeatable for credit with different instructor and/or course content.

560: Seminar in Technical Writing. 0-3-3 (6). Selected reading and research topics in technical writing theory and practice; repeatable once for credit with different instructor and/or course content.

561: Seminar in Technical Writing for Publication. 0-3-3. Write articles and annotated bibliographies for scientific and technical journals, with emphasis on audience analysis and appropriate style. Design and edit online publication.

562: Seminar in Technical Editing. 0-3-3. The work of an editor, including editing traditional and electronic texts; planning projects; managing multilple editors; and working with authors, illustrators, and production workers.

564: Seminar in Occupational Technical Writing. 0-3-3. Preparing the technical writer to understand the theory and practice of creating effective training sessions, with an emphasis on audience, task, and need analyses.

565: Seminar in Specification, Bid, Grant, and Proposal Writing. 0-3-3. Writing specifications, bids, grants, and proposals; emphasis on parts of the proposal and writing strategies for effective proposals.

566: Seminar in Technical Writing Internship. (3-6 credit hours). On the job experience in technical writing; supervised practice under realistic work conditions, 15-40 hours per week. Requires completion of individually arranged internship and final multimedia report. May only be taken for up to 6 credit hours.

568: Seminar in Readings in Scientific and Technical Communication. 0-3-3. Study of historical and current technical communication literature through the lens of gender, technology, and research methodologies.

569: Seminar in Graphics in Technical Writing. 0-3-3. Theory and practice of illustrating texts, with emphasis on designing larger documents (catalgos, manuals, multilayered webpages, electronic learning modules) for overall effectiveness.

575: Special Topics. 0-3-3 (9). Graduate seminar with topic to be designated by instructor. May be repeated twice for credit with change in topics.

583: Seminar in British Literature. 0-3-3 (9). Reading and research topics in British literature. May be repeated twice for credit with change in topics.

584: Seminar in American Literature. 0-3-3 (9). Reading and research topics in American Literature. May be repeated.

591: Literary Research and Bibliography. 0-3-3. Focuses upon methodology of scholarship, stressing various kinds of literary problems and approaches to their solutions; emphasis on descriptive and analytical bibliography.

ENTREPRENEURSHIP (ENTR)

260: Innovative Venture Research. 6-1-3. Preq., consent of instructor. Evaluation of new business ventures and commercialization of University-based intellectual property.

402: Business Design Project I. 3-0-1. Multidisciplinary team projects to develop product concept business models. Emphasis on market research and intellectual property commercialization plans. Only offered Fall Quarter.

403: Business Design Project II. 3-0-1. Preq., ENTR 402 or instructor consent. Continuation of ENTR 402 with emphasis on marketing and/or business model/plan components and intellectual property commercialization plans. Only offered Winter Quarter.

404: Business Design Project III. 3-0-1. Preq., ENTR 403 or instructor consent. Continuation of ENTR 403. Emphasis on finalizing business model/plan components and intellectual property commercialization plan. Only offered Spring Quarter.

410: Entrepreneurship for High Tech Start-Ups. 0-3-3. Preq., junior standing. Overview of the major business elements and the management of high technology enterprises.

430: Innovative Product Design. 6-1-3. Preq., junior standing and consent of instructor. An interdisciplinary, team-oriented, problem-solving approach to innovative product design and prototype development, including analysis of marketing and commercialization strategies.

460: Innovative Venture Research. 6-1-3. Preq., consent of instructor. Implementation of strategic business principles and cross-disciplinary research to evaluate new business ventures through commercialization of university-based intellectual property.

489: Special Topics. 1-4 hours credit. Selected topics in the interdisciplinary area of entrepreneurship. May be repeated for credit.

501: Technology Transfer and Commercialization. 0-3-3. This course will cover the legal and technical considerations involved in the commercialization of technology and the protection of intellectual property in an academic setting.

502: Business Design Project I. 3-0-1. Multidisciplinary team-based business design project. Emphasis on exploratory market research and developing a commercialization plan for intellectual property.

503: Business Design Project II. 3-0-1. Preq., ENTR 502 or consent of instructor. Multidisciplinary team-based business design project. Emphasis on continued market research, product prototype feasibility, developing marketing and business plan components, and developing commercialization for intellectual property.

504: Business Design Project III. 3-0-1. Preq., ENTR 503 or consent of instructor. Multidisciplinary team-based business design project. Emphasis on finalizing business plan components and the commercialization plan for intellectual property.

510: Entrepreneurship/New Venture Creation. 0-3-3. A study of the Entrepreneur's role in business, including an introduction to the process of developing an idea into a feasible business plan.

550: Directed Study in Entrepreneurship. 1-3 hours credit. Hours and credit to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of entrepreneurship.

560: Innovative Venture Research. 6-2-3. Preq., consent of instructor. Implementation of strategic business principles and cross-disciplinary research to evaluate the commercial potential of research programs and commercialization strategies for university-based intellectual property.

ENVIRONMENTAL SCIENCE (ENSC)

211: Introduction to Environmental Sciences. 0-3-3. Basic laws, principles, and issues related to causes, effects, and controls of environmental problems including human-environment interactions. Credit will not be given for ENSC 211 if credit is given for BISC 211. Master Course Articulation Matrix* [LCCN: CEVS 1103]

212: Conservation and Management of Natural Resources. 0-3-3. Introduction to the management of renewable resources including the use, conservation, and sustainability of these resources. Credit will not be given for ENSC 212 if credit is given for BISC 212.

275: Aquatic Bioassays. 0-1-1. Internet-based course centering on governmental regulations concerning bioassays to test for toxicity in waste effluents released into natural waters in the United States. Credit will not be given for ENSC 275 if credit is given for BISC 275.

310: Soil Science. 0-3-3. Preq., CHEM 100 or 120, MATH 100 or 101. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. Cannot be taken for credit if student has credit for PLSC 310.

311: Soil Science Laboratory. 3-0-1. Preq. or Coreq., PLSC 310 or ENSC 310. Laboratory exercises emphasizing fundamental soil proberties and routine analytical techniques. Cannot be taken for credit if student has credit for PLSC 311.

313: Ecology. 4 1/4-2-3. Preq., BISC 132, 133. An overview of the interactions of plants, animals, and non-living factors as they influence individuals, populations, communities, and ecosystems. Credit will not be given for ENSC 313 if credit is given for BISC 313. Master Course Articulation Matrix*

400: Environmental Science Seminar. 0-1-1(3). Reviews, reports, and discussions of current problems relating to environmental science. Credit will not be given for ENSC 400 if credit is given for BISC 480.

450: Management of Soil & Water Quality. 0-3-3. Preq., ENSC 310 or PLSC 310. Study of agricultural and environmental techniques that affect soil and water quality with emphasis on nutrient management, soil erosion, and best management practices. Cannot be taken for credit if student has credit for PLSC 450.

458: Environmental Law. 0-3-3. Preq., Junior standing or consent of instructor. A review and analysis of state and federal laws, conventions, and international treaties that influence natural resource management. **(G)**

478: Cooperative Education Work Experience. 1-9 hours credit. May be repeated for credit. On site, supervised, structured work experiences. Application and supervision fee required. Cannot be taken for credit if student has credit for AGSC 478.

FAMILY & CHILD STUDIES (FCS)

100: Marriage and Family Relations. 0-3-3. Significant factors for successful marriage, marital adjustment, and family relations.

101: Skills for Marriage. 0-3-3. Designed to provide students with information and skills necessary to facilitate an enduring and satisfying marriage.

110: Introduction to Family and Child Studies. 0-1-1. Introduction to the various disciplines within Family and Child Studies, and orientation to the curriculum, practica, professional development and careers in FCS.

200: Parenting. 0-3-3. Study of the parenting role. Emphasis on parent-child interaction as it influences child growth and development. Includes infant stimulation experience.

201: Introduction to Life Span Development. 0-3-3. Basic principles and sequences in human development from prenatal period through aging years. Emphasis on developmental tasks, forces influencing development, and the family life cycle.

210: Family Interpersonal Relationships. 0-3-3. The study of interaction between individuals with application to family dynamics, personal relationships, and professional interaction.

225: Introduction to Child Life. 0-1-1. An introduction to the role of the Child Life Specialist and study tour of area Child Life programs and services.

255: International Family Studies. 0-3-3. Preq., FCS 201. Survey of family life, values, and norms of racially and ethnically diverse families. Emphasis on working with diverse populations in the United States and worldwide.

276: Children's Near Environments. 0-3-3. An examination of issues related to the near environment of children including child nutrition, food preparation and activities, housing, equipment, and clothing needs.

277: Guiding Young Children. 0-3-3. Principles and techniques of positive guidance emphasizing a problem solving philosophy and a child-centered approach.

280: Hospitalized Children and Youth. 0-3-3. Study of issues involved in childhood illnesses and hospitalization.

301: Early Childhood Development. 3-2-3. Preq., FCS 201. The development of young children. Theory and practice are correlated through readings, class discussions, and preschool laboratory experiences.

320: Family Theory. 0-3-3. Preq., FCS 201 or consent of instructor. An overview of theoretical frameworks in family science with primary emphasis given to application of constructs.

325: Seminar on Child Life Professional Issues. 0-2-2. Preq., FCS 225, 280. In-depth discussion on ethics, professional competencies, standards of clinical practice, and current trends in Child Life. Study tour of regional Child Life programs.

331: Infant and Toddler Development. 3-2-3 Preq., FCS 201 or consent of instructor. Survey of influences on prenatal and infant development. Theory and practice correlated through readings, class discussion and laboratory experiences.

341: Issues in Middle Childhood and Adolescence. 3-2-3. Preq., FCS 201 or consent of instructor. A survey of middle childhood and early adolescent years as they relate to children's development and family interaction; includes observation and laboratory experiences.

355: Advanced Interpersonal Skills. 0-3-3. Preq., FCS 210. Examination of interpersonal skills for the family and child helping professional or advocate. Discussion of traditional helping paradigms.

361: Techniques for Observing and Assessing Young Children. 3-2-3. Preq. FCS 301 or 331. Skills and strategies needed to observe and assess children's development.

380: Understanding Childhood Diseases and Disorders. 0-3-3. Overview of childhood diseases/disorders, diagnostic tests, and treatment, with emphasis on effects of illness on normal growth and development and family functioning.

395: Research Methods in Family and Child Studies. 0-3-3. Preq., FCS 320 or consent of instructor. Examination of methods, implications, and ethics of child and family research. Theory based research and competency in reading empirical studies will be emphasized.

400: Contemporary Family Issues. 0-3-3. Selected issues related to family interaction and adjustment from an ecosystem perspective.

401: Administration and Curriculum of Early Childhood Education Programs. 0-3-3. Preq., FCS 276 or 277. Organization of preschool programs with emphasis on creative activities, materials and facilities. **(G)**

420: Family Life Education. 0-3-3. Preq., FCS 320. Methodology of teaching current family issues in family education programs. **(G)**

431: Issues in Developmental Disabilities. 0-3-3. Preq., FCS 201 or consent of instructor. An examination of developmental disabilities across the lifespan and related issues at all ages including etiology, family relationships, social and legal issues, and religion/spirituality.

432: Children Under Stress. 0-3-3. Preq., FCS 301 or consent of instructor. In-depth study of issues relating to the identification, understanding, and intervention in childhood stress.

435: Family Stress. 0-3-3. An examination of the stressors encountered by families over the life span, with attention placed on examining the needs, coping, and resources of families. **(G)**

444: Sexuality and Family Life. 0-3-3. Preq. FCS 100 and 201. Study of sexuality across the life course, emphasizing factors that influence sexuality, the role of sexuality on family relations, and implications for family life education. **(G)**

447: Issues in Gerontology. 0-3-3. Preq., FCS 201 or PSYC 308 or consent of instructor. Issues that impact older age adults including public policy, close relationships, sexuality, housing, nutrition and consumerism. **(G)**

451: Development and Therapeutic Value of Play. 0-3-3. Preq., FCS 301 or FCS 331. Study of play in teaching, therapy, and creativity for children and youth.

471: Family Law and Public Policy. 0-3-3. Preq., FCS 100 and 201, or consent of instructor. The study of the legal system and public policy as they relate to family structure and function. **(G)**

475: Family Financial Management. 0-3-3. Application of financial management strategies and principles to personal and family financial decision-making and planning.

490: Perspectives in Family and Child Studies. 0-3-3 (9). Preq., FCS 201 or consent of instructor. An in-depth study of current trends and issues that relate to strengthening children and families.

500: Advanced Family Theories. 0-3-3. An examination of the structures and functions of families and relationships will be examined using the theoretical frameworks.

502: Advanced Child Development. 0-3-3. An in-depth exploration into social/emotional, cognitive and physical development of children from birth to 8 years of age.

503: Adolescence and Emerging Adulthood. 0-3-3. A research and theory-based examination of the physical, social, affective, and cognitive development of adolescents and emerging adults.

510: The Family in Middle and Later Years. 0-3-3. Study of changes, needs and adjustments during the middle and later years of the family.

520: Interpersonal and Family Dynamics. 0-3-3. Study of dynamics of family interaction and relationship functioning. Emphasis on current research and issues confronting contemporary families.

521: Family Crisis. 0-3-3. Origins, development, and coping responses to predictable and unexpected crises of family systems in varied ecological settings.

522: Family Life Education Programs. 0-3-3. Study of theory and methods used in developing programs to prevent problems and build strengths of families.

550: Multicultural Family Studies. 0-3-3. An examination of cultural variations in family structures, relationships, roles, and behaviors with an emphasis on developing cross-cultural competence in professional practice.

571: Domestic Violence and the Law. 0-3-3. An examination of legal issues associated with domestic violence.

590: Seminar: Family & Child Programs. 0-3-3 (12). An in-depth study of current trends and research related to children and families. May be repeated for credit with change of seminar topic.

FINANCE (FINC)

318: Business Finance. 0-3-3. Preq., ACCT 202; ECON 201, 202; MATH 125, and junior standing. An introduction to the principles of financial management including the role of the financial manager, problems of liquidity vs. profitability, budgeting of capital expenditures, management of short-term and long-term funds, and management of assets. Master Course Articulation Matrix* [LCCN: CFIN 3113]

319: Intermediate Financial Management. 0-3-3. Preq., FINC 318. Advanced practices of financial management are developed. Financial models used in decision-making and their application to major areas of business finance are emphasized.

330: Risk and Insurance. 0-3-3. A comprehensive study of riskbearing, including insurance and non-insurance methods of handling a risk; introduction to the fields of life, disability, property, and casualty insurance.

401: Internship in Finance I. 3 hours credit. (Pass/Fail) Preq. consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

402: Internship in Finance II. 3 hours credit. (Pass/Fail) Preq., consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

406: Contemporary Problems and Issues in Finance. 0-3-3 (6). Preq., FINC 318 and consent of instructor. An analysis of contemporary problems and issues of current interest. Course content would change with the topic covered in a specific quarter.

414: Investments. 0-3-3. Preq., FINC 318. Analyses of investments in common stocks, bonds, and other financial assets; sources of information for the investor; analysis of firms' financial statements; classes of investments. **(G)**

421: Portfolio Risk Management. 0-3-3. Preq., FINC 414. Examine concepts in portfolio theory. Evaluate the implications of portfolio building, security selection, and risk-management techniques, including the use of derivatives. **(G)**

422: Bank Management. 0-3-3. Preq., FINC 318. Problems in organization, operation, and management of commercial banks, with special emphasis on credit banking. **(G)**

425: Money Markets, Capital Markets and Financial Institutions. 0-3-3. Preq., FINC 319. A survey of the markets in which funds are traded; a survey of the lending and investing characteristics of selected financial institutions. **(G)**

430: Advanced Financial Management. 0-3-3. Preq., FINC 319. The case method is used to apply decision-making procedures to realistic problems in financial management.

431: Life Insurance. 0-3-3. A comprehensive study of personal and group life, accident and health, hospitalization, old age, survivors and disability insurance and annuities.

442: Principles of Real Estate and Land Economics. 0-3-3. Land utilization, city growth, land development, legal processes and transactions, real estate marketing, financing and financial institutions, taxes, condemnation, planning and zoning.

443: Appraisal. 0-3-3. Application of value theory and principles to real estate values; professional appraisal principles methodology. Corresponds to Appraisal I, the Appraisal Institute.

445: Real Estate Finance. 0-3-3. Preq., FINC 318. Finance principles applied to real estate. Sources of funds, legal and financial instruments, and analytical methods for decision-making.

477: Finance and Accounting for Non-Financial Managers. 0-3-3. A general survey of the use of financial and accounting information in understanding financial planning and decision making. This course is designed for non-business majors and may not be used for credit toward any major or minor within the College of Business.

485: International Finance. 0-3-3. Preq., FINC 318. A study of the various modes of financing international trade, including international financial organizations, an analysis of exchange rates, foreign investments, multinational firms, and international banking. **(G) (IER)**

494: Foundations of Business Finance. 0-0-3. Self-paced course in finance sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail)

511: Risk Management. 0-3-3. The economic concept of risk and various techniques utilized in the discovery, evaluation and treatment of a pure business risk.

515: Financial Management. 0-3-3. Preq., FINC 318 or FINC 494 or consent of instructor. The study of a financial manager's role in financial planning, acquisition and management of funds for a business firm.

516: Financial Management: Policies and Practices. 0-3-3. Preq., FINC 515 or consent of instructor. Application of decision-making procedures to financial management problems. Student is required to solve case problems and manage the financial affairs of computer simulated firm.

517: Capital Budgeting Seminar. 0-3-3. Preq., FINC 515 or consent of instructor. A systematic and thorough treatment of the theory and practice of capital expenditure management, emphasizing financial modeling and employing a quantitative format.

518: Advanced Commercial Banking. 0-3-3. FINC 515 or consent of instructor. Advanced studies in contemporary banking practices with special emphasis in credit analysis. Structuring of loans in specialized commercial lending areas as well as the entire credit granting decision process will be examined.

525: Seminar in Investments. 0-3-3. FINC 515 or consent of instructor. Study of the theories and techniques of investment analysis for purposes of evaluation and selection of investments.

530: Advanced Financial Management. 0-3-3. Preq., FINC 515 or consent of instructor. Develop and apply financial models used in corporate finance and investments practice.

550: Directed Study in Finance. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of finance.

577: Finance and Accounting for Non-Financial Managers. 0-3-3. A general survey of the use of financial and accounting information in understanding financial planning and decision making. This course is designed for non-business majors and may not be used for credit toward any major or minor within the College of Business.

603: Advanced Seminar in Research. 0-3-3 (6). Requires Doctoral standing or special permission from instructor. May be repeated once for credit. The seminar will cover research methods and current trends in research. Critical evaluation of research is required.

604: Preparing Publishable Research. 1-3 hours. Requires Doctoral standing. Integration of literature, methods, and statistics in finance. Students work independently with faculty to develop research papers for publication. Oral presentation of research required.

610: Theory of Corporate Finance. 0-3-3. Preq., Doctoral Standing. A comprehensive study of corporate finance theory including capital structure, payout policy, mergers and acquisitions, asset sales, and financial risk management.

611: Risk Management. 0-3-3. Requires Doctoral standing. May require additional class meetings. The economic concept of risk and various techniques utilized in the discovery, evaluation and treatment of a business pure risk. Credit will not be given for FINC 611 if credit is given for FINC 511.

612: Financial Econometrics I. 0-3-3. Preq., Doctoral standing. Prices, returns, compounding, marginal, conditional, and joint distributions, market efficiency. The predictability of asset returns, market-microstructure, event-study analysis, CAPM, multifactor-asset pricing models, and related topics.

615: Theory of Investments. 0-3-3. Preq., Requires Doctoral standing. A detailed study of investment theory including utility theory, asset pricing theory (CAPM, APT, and Consumption CAPM), and fundamental financial econometric skills.

616: Financial Management: Policies and Practices. 0-3-3. Preq., FINC 515 or consent of instructor. Requires Doctoral standing. May require additional class meetings. Application of decision-making procedures to financial management problems. Student is required to solve case problems and manage the financial affairs of computer simulated firm. Credit will not be given for FINC 616 if credit is given for FINC 516.

617: Capital Budgeting Seminar. 0-3-3. Preq., FINC 515 or consent of instructor. Requires Doctoral standing. May require additional class meetings. A systematic and thorough treatment of the theory and practice of capital expenditure management, emphasizing financial modeling and employing a quantitative format. Credit will not be given for FINC 617 if credit is given for FINC 517.

618: Advanced Commercial Banking. 0-3-3. FINC 515 or consent of instructor. Requires Doctoral standing. May require additional class meetings. Advanced studies in contemporary banking practices with special emphasis in credit analysis. Structuring of loans in specialized commercial lending areas as well as the entire credit granting decision process will be examined. Credit will not be given for FINC 618 if credit is given for FINC 518.

619: Financial Econometrics II. 0-3-3. Preq., Doctoral standing, FINC 612 and FINC 630 or consent of instructor. Relations among prices, dividends and returns. Present value relations and US stock price behavior. Models of intertemporal equilibrium, derivative pricing, fixed income, and term structure. Non-linearities in financial data.

620: Seminar in Financial Institutions. 0-3-3. Preq., Doctoral standing and FINC 615. Theoretical and empirical studies of financial institutions. Modeling banking firms, efficiencies in banking, bank lending deposit insurance, and related topics.

625: Seminar in Investments. 0-3-3. FINC 515 or consent of instructor. Requires Doctoral standing. May require additional class meetings. Study of the theories and techniques of investment analysis for purposes of evaluation and selection of investments. Credit will not be given for FINC 625 if credit is given for FINC 525.

630: Seminar in Corporate Finance. 0-3-3. Preq., Doctoral standing and FINC 615. Recent theoretical and empirical developments in corporate and managerial finance. Topics include sources and costs of firm financing, the market for corporate control, corporate governance, and related topics.

635: Seminar in International Finance. 0-3-3. Preq., Doctoral standing and consent of instructor. Students will develop an understanding of and learn skills in the concepts central to international finance and research related to this area of study.

640: Advanced Seminar in Investments. 0-3-3. Preq., Doctoral standing and FINC 615. Recent theoretical and empirical developments in modern investment analysis. Topics include IPOs, fixed income investments, derivatives, mutual funds, efficient markets, market-microstructure, strategic trader behavior, and related topics.

645: Advanced Seminar in Corporate Finance. 0-3-3. Preq., FINC 630. An in-depth look at current research in specific topic areas in corporate finance. Topic(s) to be determined by instructor.

650: Directed Study of Finance. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of finance.

685: Comprehensive Exam in Finance. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in finance. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in finance. Requires consent of graduate director.

FIRST YEAR EXPERIENCE (FYE)

100: The Experience. 0-1-1. Utilizes an interdisciplinary experience by focusing on 21st century skills. Application experiences in communication, critical thinking and collaborative environments while engaging in University culture.

FOOD & NUTRITION (FNU)

103: Human Nutrition and Weight Control. 0-1-1 (3) Pass/Fail. Personalized weight control program based on recommended nutrients, behavior modification and energy balance.

200: Introduction to the Nutrition Professions. 0-1-1. An introduction to the nutrition and dietetics professions including foods and foodservice management. Topics include ethics, standards of practice and professional performance, and trends.

201: Food Cost Accounting. 0-3-3. This course focuses on controlling foodservice costs topics and overviews the fundamental knowledge of financial management, managerial accounting, and operational cost controls for foodservice professionals.

203: Basic Human Nutrition. 0-3-3. Functions of various nutrients and their interrelationships in children and adults with emphasis on personal food habits and selection.

220: Life Cycle Nutrition. 0-3-3. Evaluation of variations in nutrition requirements in all stages of the life cycle, including prenatal, infant, childhood, adolescent, adult, and geriatric nutrition.

232: Basic Food Science. 3-2-3. Use of food science principles in food selection and preparation procedures. Introduction to food science research.

253: Sports Nutrition. 0-3-3. Nutrient needs and food related issues in exercise for wellness and training for competitive athletes.

264: Basic Foods and Nutrition Research. 0-2-2. An introduction to the food and nutrition research methods processes, including proposal development, data analysis, study conclusions, and computer applications.

274: Introduction to Dietetics Research. 0-3-3. An introduction to dietetics, trends affecting the professional, and the research process, including computer applications.

302: Quantity Foods Field Experience. 4-2-3. Preq., FNU 232. Equipment and production in the food service industry; field experience in food service facilities.

402: Human Nutritional Biochemistry I. 0-3-3. Preq., FNU 203, BISC 227, CHEM 121. Food sources and utilization of carbohydrates, proteins, and fats in humans.

403: Community Nutrition. 0-3-3. Preq., FNU 203 and 220. Prevention and treatment of nutrition problems common to individuals, families, and communities. Includes survey of federal, state, and local nutrition programs for various age groups.

404: Human Nutritional Biochemistry II. 0-3-3. Preq., FNU 402. Food sources and utilization of vitamins, minerals, and water in humans.

412: Advanced Food Science. 3-2-3. Preq., FNU 232, CHEM 121. Study of the chemical and physical nature of foods. Individual investigations of selected problems.

414: Nutrition Assessment. 3-2-3. Coreq., FNU 402. Planning, implementation, and evaluation of nutrition needs and provision of individualized client care.

423: Medical Nutrition Therapy I: Diabetes, Cancer, & Heart Disease. 3-2-3. Preq., FNU 402 and 414. Medical nutrition therapy for cardiovascular disease, diabetes, cancer, food allergies, and AIDS.

443: Medical Nutrition Therapy II: GI, Renal Disease, and Nutrition Support. 3-2-3. Preq., FNU 423. Enteral and parental nutrition; medical nutrition therapy for gastrointestinal, liver, and kidney diseases.

463: Medical Nutrition Therapy III: Clinical Applications. 3-2-3. Coreq., FNU 443. Structured experiences in nutrition and dietetics to develop assessment, interviewing, and nutrition education skills.

472: Food Systems Management II. 0-3-3. Preq., FNU 302. Study of the principles of organization and management applied to institutional food service.

492: Internship in Nutrition-Dietetics. 1-9 hours credit (28). (Pass/Fail). Preq., Completion of approved didactic program in dietetics. Application required.

503: World Nutrition Problems. 0-3-3. A study of world wide nutritional problems with special emphasis on recent research and contributing factors. Open to non-majors.

520: Advanced Life Cycle Nutrition. 0-3-3. A chronological approach to factors that influence nutritional requirements during various stages of human growth and development.

523: Recent Advances in Nutrition. 0-3-3 (12). Current developments in normal nutrition, nutrition assessment, and diet therapy.

525: Nutrition for Educators. 0-3-3. U.S. Dietary Guidelines based nutrition information and resources for preschool through high school age individuals. No prerequisites.

527: Adult Weight Management. 0-3-3. A study of nutrition guidelines for weight management.

528: Nutritional Management of Cardiovascular Disease. 0-3-3. The role of diet in the prevention, development, and treatment of cardiovascular disease.

529: Nutritional Management of Diabetes. 0-3-3. Study of issues related to diabetes including assessment and the role of diet in diabetes management.

530: Nutritional Assessment. 0-3-3. Nutritional assessment of patients with medical problems.

531: Nutrition & Renal Disease. 0-3-3. A study of nutritional issues related to renal disease.

532: Nutrition & Aging. 0-3-3. A study of the nutritional issues related to the aging process.

533: Dietary Supplements in Human Nutrition. 0-3-3. A study of vitamins, minerals, herbs, phytochemicals, and other compounds used as supplements in human nutrition.

534: Nutrition Support. 0-3-3. Current developments in nutrition support related to various disease states including diabetes, liver disease, end-stage renal disease, gastrointestinal problems, and pulmonary failure.

543: Nutrition and Worksite Wellness. 0-3-3. The role of wellness programs in community and clinical settings, including assessment, planning, implementation, and evaluation of programs.

547: Childhood Weight Issues and Management. 0-3-3. A comprehensive overview of the pediatric obesity epidemic, and the most recent recommendations regarding screening, assessment, and treatment for overweight youths.

548: Applied Dietetics. 0-3-3. Coreq., FNU 492. Application of nutrition assessment techniques and food systems management principles for use in dietetics and nutrition service settings.

562: Topics in Food Service Management. 0-3-3 (9). An in-depth study of current topics and trends in food service management. May be repeated for credit with change in topic.

592: Internship in Nutrition and Dietetics. 1-6 hours credit (21). (Pass/Fail). Four quarter sequence of supervised experiences satisfying requirements to take registration exam for dietitians. Maximum of 3 hours will apply to MS degree.

598: Certificate Completion Nutrition & Dietetics. No credit. Preq., Graduate standing and Consent of the Dietetic Internship Director. Required for all students completing a Graduate Certificate Program in Nutrition and Dietetics. (Pass/Fail)

FOREIGN LANGUAGES (FLNG)

101: Special Offerings in Less Commonly Taught Languages: Elementary 1. 0-3-3. Introduction to a foreign language not listed in other departmental offerings; emphasis on communicative competence for contemporary languages and on reading competence for classical languages.

102: Special Offerings in Less Commonly Taught Languages: Elementary 2. 0-3-3. Preq., FLNG 101. Introduction to a foreign language not listed in other departmental offerings; emphasis on communicative competence for contemporary languages and on reading competence for classical languages.

201: Special Offerings in Less Commonly Taught Languages: Intermediate 1: 0-3-3. Preq., FLNG 102. The more complex structures of a language not listed in other departmental offerings; emphasizes communicative competence for contemporary languages and reading competence for classical languages.

202: Special Offerings in Less Commonly Taught Languages: Intermediate 2: 0-3-3. Preq., FLNG 201. The more complex structures of a language not listed in other departmental offerings; emphasizes communicative competence for contemporary languages and reading competence for classical languages.

203: Special Offerings in Less Commonly Taught Languages: Intermediate 3: 0-3-3. Preq., FLNG 202. The more complex structures of a language not listed in other departmental offerings; emphasizes communicative competence for contemporary languages and reading competence for classical languages.

489: Special Topics. 0-3-3 (6). Preq., advanced standing and permission of Department Head. Topic to be designated by the instructor. **(G)**

494: Independent Studies in Foreign Languages. 1-3 credit hours (9). Preq., advanced standing and permission of Department Head. Topics in foreign languages, literature and linguistics for independent study in the student's curriculum specialty.

FOREIGN STUDIES (FSTU)

101: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

201: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

301: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

401: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

501: Special Academic Studies. 1-3 hours. Special academic studies conducted in foreign countries.

FORESTRY (FOR)

111: Introduction to Forest and Wildlife Management. 4-1-2. Survey of forest and wildlife habitat distribution, history, policies, management, and utilization.

201: Microcomputer Applications. 0-3-3. Introduction to microcomputers with specific applications in filing conventions, word processing, spreadsheets, electronic communications, and other topics.

202: Forest Fire. 0-2-2. Fire; it's role in ecosystems, use in management, and control.

220: Problems. 1-3 semester hours credit (6). Special problems in forestry and wildlife conservation correlated with management of natural resources.

230: Biology of Forest Plants. 0-3-3. Preq., BISC 101 or 130. The classification, structure, function, and basic physiological processes in principal forest plants.

231: Dendrology I. 4-0-1. Preq., BISC 130 or 216, or FOR 230, or WILD 230. The identification of woody plant species found in north central Louisiana using leaves, twigs, buds, fruit, flowers, and form.

232: Dendrology II. 4-0-1. Preq., FOR 231 or WILD 231. A continuation of Dendrology I with the identification of woody plant species found in north central Louisiana using leaves, twigs, buds, fruit, flowers, and form.

233: Forest Trees of North America. 4-0-1. Plant classification, nomenclature, and silvics of important tree species native of North America.

241: Tech Latin America I. 1-0-1. Preq., Consent of instructor. Relationships between people, landscapes, and their associated natural resources. Topics include cultural awareness, history, sustainable development, ecotourism, deforestation and other related issues in Central America. Credit will not be given for FOR 241 if credit has been given for SOSC 241. **(IER)**

242: Tech Latin American II. 3-0-2. Preq., Consent of instructor. Continuation of FOR 241 that includes travel portion of course sequence: Relationships between people, landscapes, and associated natural resource use from a firsthand international perspective. Credit will not be give for FOR 242 if credit is given for SOSC 242. **(IER)**

300: Forest Soils. 3-2-3. Preq., CHEM 100 or 120, or permission of instructor. Physical, chemical and biological properties of forest soils and associated management problems with an emphasis on site productivity and sustainability.

301: Forestry Ecology. 4-2-3. Preq., FOR 230 or WILD 230 and FOR 300. Ecological factors affecting the growth and development of trees and stands.

302: Silviculture I. 4-2-3. Preq., FOR 301 or BISC 313 or ENSC 313. An in-depth study of practices used in forest stands to regenerate, cultivate, and harvest them.

306: Forest Measurements I. 4-2-3. Preq., AGSC 320, or STAT 200, or QA 233, or PSYC 300, or equivalent statistics course. Principles of sampling and measuring trees, area, forest stands, growth, and land productivity.

310: Forest Sustainability and Recreational Use. 4-1-2. Practices and techniques that support sustainable forestry and recreational use of southern forests.

312: Forest and Forest Products Entomology. 0-2-2. Preq., BISC 101 or 130. Study of important insects affecting pine, hardwood, and urban trees in the South, including a basic overview of insects in relation to the Animal Kingdom.

313: Forest and Forest Products Pathology. 4-2-3. Preq., FOR 230 or WILD 230. The important diseases of forests and forest products.

315: Forest Measurements II. 4-2-3. Preq., FOR 306. Execution of forest surveys; techniques of growth measurement; determination of volume of trees and stands.

318: Forest Operations. 3-2-3. Study of mechanized forest operations including all functions from timber felling to delivery of product to mill. Logging safety. Machinery costs. Forest road engineering.

319: Forest Products Manufacturing. 3-0-1. An in-depth look at the manufacturing processes used to produce the major forest products and tours of selected production facilities.

320: Silviculture II. 8-0-2. Preq., FOR 302. The practice of silviculture field procedures used in the southern forest to regenerate and grow tree stands.

401: Forest Management. 0-3-3. Preq., FOR 406 and 425. Managing forest properties to meet landowner objectives using growth and yield models, optimization techniques, best management practices, and sound business principles.

402: Watershed Management. 3-2-3. Preq., FOR 300 and 301, or permission of instructor. Forest hydrologic system and its management. Soil erosion and best management practices. Water quality and its regulation. **(G)**

404: Wood Technology and Products. 3-2-3. Preq., FOR 232 or WILD 232. Formation, structure, identification and properties of commercial woods plus an overview of the manufacturing processes used to produce the major forest products. **(G)**

406: Forest Economics/Valuation. 0-3-3. Preq., FOR 310, 315, 320, and GISC 250. Economics and financial principles as a basis for decision making in forestry. **(G)**

417: Bottomland Hardwoods. 4-2-3. Preq., FOR 320. Silviculture and utilization of bottomland hardwoods.

420: Problems. 1-3 semester hours credit (9). Special problems in forestry and wood utilization correlated with management of land and natural resources.

425: Forest Growth and Yield. 0-3-3. Preq., FOR 315. Concepts, theories, and parameters involving the development and use of growth models; emphasizing applications to forest growth projections and management.

427: Advanced Forest Soils and Nutrition. 0-3-3. Preq., FOR 300 or PLSC/ENSC 310. Forest soils' properties and processes. Nutrient availability, uptake and allocation. Long-term, sustainable productivity.

428: Wetland Ecology. 4-2-3. Preq., FOR 301 or BISC 313 or ENSC 313 or equivalent. Study of wetland characteristics and the ecological processes occurring within wetlands. Wetland delineation, restoration, construction and regulation will also be covered. Cannot be taken for credit if student has credit for WILD 428.

430: Tech Latin America I. 3-0-1. Preq., consent of instructor. Relationships between people, landscapes, and their associated natural resources. Topics include cultural awareness, sustainable development, ecotourism, deforestation, and other related issues in Central America. **(IER)**

431: Tech Latin America II. 3-1-2. Preq. consent of instructor. Continuation of FOR 430 that includes travel portion of course sequence: Relationships between people, landscapes, and associated natural resource use from a firsthand international perspective. **(IER)**

456: Senior Exit Exam. 4-0-1. Preq., FOR 401. Comprehensive review of Forestry program couse content prior to final comprehensive examination.

460: Forest Ecophysiology. 3-2-3. Preq., FOR 301 or BISC 313 or ENSC 313. Basic woody plant structure, growth, and metabolism and how they are affected by genetics, silvicultural practices, and environment.

478: Practica/Internship/Cooperative Education in Forestry. 1-9 hours credit (9). (Pass/Fail). Preq., Junior standing, 2.0 cumulative GPA, and approval of Forestry Experiential Education Coordinator. On site, supervised, structured work experiences. Application and supervision fee required.

480: Professional Practice. 9-0-3. Preq., FOR 401. Integrated formulation, calculation, execution, and implementation of multiple-use forest resources management plans incorporating ethical, biological, quantitative, economic, social, and administrative constraints. Competency exam.

527: Advanced Forest Soils and Nutrition. 0-3-3. Forest soils' properties and processes. Nutrient availability, uptake and allocation. Long-term sustainable productivity.

528: Advanced Wetland Ecology. 4-2-3. Study of wetland characteristics and the ecological processes occurring within wetlands. Wetland delineation, restoration, construction and regulation will also be covered. Credit will not be given for FOR 528 if credit is given for BISC 528.

FRENCH (FREN)

101: Elementary French. 0-3-3 each. Conversation, reading and grammar. Master Course Articulation Matrix* [LCCN: CFRN 1013]

102: Elementary French. 0-3-3 each. Preq., FREN 101. Conversation, reading and grammar. Master Course Articulation Matrix* [LCCN: CFRN 1023]

201: Intermediate French. 0-3-3 each. Preq., FREN 102 or equivalent. Conversation, reading, grammar and culture. Master Course Articulation Matrix* [LCCN: CFRN 2013] or [LCCN: CFRN 2026]

202: Intermediate French. 0-3-3 each. Preq., FREN 201 or equivalent. Conversation, reading, grammar and culture. Master Course Articulation Matrix* [LCCN: CFRN 2023] or [LCCN: CFRN 2026]

301: French Conversation and Composition. 0-3-3 each. Preq., FREN 202 or permission of department head. Required for major in French.

302: French Conversation and Composition. 0-3-3 each. Preq., FREN 202 or permission of department head. Required for major in French.

304: Survey of French Literature. 0-3-3. Preq., FREN 202 or permission of department head. Required for major in French. A survey of French literature from the Middle Ages.

305: Survey of French Literature. 0-3-3. Preq., FREN 202 or permission of department head. Required for major in French. A survey of French literature from the Middle Ages.

308: French Civilization. 0-3-3. Preq., FREN 202 or permission of department head. Lectures and reading in history, geography, language, arts, general culture of French lands.

390: Francophone Children's Literature. 0-3-3. Preq., FREN 304 or 305 or permission of department head. A study of French-speaking children's stories, songs, rhymes and games.

400: The Drama in France. 0-3-3. Preq., FREN 304 or 305 or permission of department head. A study of the drama in France up to 1914, with reading of selective works.

404: Contemporary French Literature. 0-3-3. Preq., FREN 304 or 305 or permission of department head. A study of French literature from 1914 to the present with reading of selective works.

417: The Novel in French. 0-3-3. Preq., FREN 304 or 305 or permission of department head. A study of the novel in France, with reading of selective works.

428: French Literature in English Translation. 0-3-3 (9). Representative works of French literature from the Middle Ages to the 20th century; repeatable for credit with different course content. May not be counted towards a major or minor in French. Also listed as ENGL 428. **(G) (IER)**

450: The French Language. 0-3-3. Preq., 21 hours French or consent of instructor. General characteristics of the language and intense review of grammar.

470: French Phonetics and Oral Reading. 0-3-3. Preq., FREN 301-302 or permission of department head. Required for major in French.

480: Commercial French. 0-3-3. Preq., FREN 450 or consent of instructor. Study of business practices and regulation of France and Canada with emphasis on common commercial forms.

GENDER STUDIES (GST)

101: Introduction to Gender Studies. 0-3-3. This course serves as the foundation for the Gender Studies minor. It will address significant events concerning gender in history, literature, and culture. In addition, this course will introduce the student to a variety of important currents of thought in contemporary gender studies.

GEOGRAPHY (GEOG)

203: Physical Geography. 0-3-3. Fundamentals of physical and biogeography. Topics include surface and fluvial geomorphology, weather, climate, and biogeography. Master Course Articulation Matrix* [LCCN: CGRG 2213]

205: Cultural Geography. 0-3-3. Discussion of the spatial patterns of the human world; people, their culture, their livelihoods, and their imprints of the landscape. Master Course Articulation Matrix* [LCCN: CGRG 2013] **(IER)**

210: World Regional Geography. 0-3-3. Introduction to place and spatial relationships around the globe, with an emphasis on the developing world. Master Course Articulation Matrix* [LCCN: CGRG 2113] **(IER)**

290: Geography of Popular Culture. 0-3-3. Examines the patterns and processes of American popular culture. Topics include the geography of sports, music, television, movies, and popular architecture.

310: Geography of Louisiana. 0-3-3. Open only to junior, senior and graduate students. The climate, natural regions, and resources of Louisiana; cultural development, sources and distribution of the population; settlements and agriculture.

312: Race and Ethnic Relations. 0-3-3. Preq., SOC 201 or GEOG 205 or 210. Factors and conditions which underlie disagreement about fundamental values; their relation to social maladjustment; evaluation of theories; group approaches to reintegration. Also listed as SOC 312.

321: American Landscapes. 0-3-3. Folk, vernacular, and popular landscape items are explored. Special attention is given to developing student's ability to "read" the American landscape as text.

331: Geography of Latin America and the Caribbean. 0-3-3. Preq., GEOG 203 or GEOG 205 or GEOG 210. Provides a broad introduction of Latin America and the Caribbean, and includes a focus on both the physical and cultural dimensions of the region. **(IER)**

341: Computer Cartography. 3-2-3. Preq., GISC 250. Elements of map interpretation and construction: creation, manipulation, and analysis of spatially defined data. Also listed as GISC 341.

440: Economic Geography. 0-3-3. A spatial perspective is used to examine economic principles. Topics include transportation, retail and industrial site location analysis, and the political/space economy.

470: Urban Geography. 0-3-3. Patterns and processes of large North American cities are examined. Topics covered include urban politics, race, government housing policy, urban revitalization and gentrification.

GEOGRAPHIC INFORMATION SCIENCE (GISC)

224: GPS in Natural Resource Management. 4-1-2. Preq., GISC 250. Introduction to global positioning systems (GPS).

250: Introduction to Geographic Information Systems (GIS). 3-2-3. An introduction to GIS focusing on geographic concepts, data analysis, and understanding GIS software.

260: Remote Sensing of Natural Resources. 3-2-3. Principles, methods, and applications of remote sensing relevant to forestry, wildlife, and other natural resources management fields.

341: Computer Cartography. 3-2-3. Preq., GISC 250. Elements of map interpretation and construction: creation, manipulation, and analysis of spatially defined data. Also listed as GEOG 341.

350: Intermediate Geographic Information Systems (GIS). 3-2-3. Preq., GISC 250, 260. Intermediate geographic information systems technology focusing on theoretical, technical, and applied aspects of analytical GIS.

360: Geographic Information Systems (GIS) Spatial Statistics. 0-2-2. Preq., GISC 250. The course provides an introduction to spatial statistical methods used in GIS analysis of spatial data.

371: Advanced Geographic Information Systems (GIS) and Spatial Analysis. 3-2-3. Preq., GISC 350. Advanced techniques in geographic information systems, integrated with intermediate level spatial analysis.

420: Problems in Geographic Information Science. 1-3 semester hours credit (6). Special problems in GIS, spatial data, remote sensing and other areas of Geographic Information Science.

460: Computer Programming for Geographic Information Systems (GIS) I. 3-2-3. Preq., GISC 371. Visual basic programming skills to support GIS and database applications.

461: Computer Programming for Geographic Information Systems (GIS) II. 3-2-3. Preq., GISC 460. A continuation of GISC 460. Programming GIS using a modern programming language.

462: Geographic Information Systems (GIS) Spatial Database Applications I. 3-2-3. Preq., GISC 371. Expansion on GIS theory, database design, development, management, and analysis.

463: Geographic Information Systems (GIS) Spatial Database Applications II. 3-2-3. Preq., GISC 462. A continuation of GISC 462.

464: GIS Application Project. 12-0-4. Preq., GISC 461, 463. Students must solve a problem using spatial data and the analysis capabilities of GIS.

GEOLOGY (GEOL)

111: Physical Geology. 0-3-3. Igneous, sedimentary, and metamorphic rocks; erosion of the earth by streams, oceans, winds, glaciers; phenomena of mountains, volcanoes, earthquakes; and the earth's interior. Master Course Articulation Matrix* [LCCN: CGEO 1103]

112: Historical Geology. 0-3-3. Preq., GEOL 111. History of the earth as revealed in the character and fossil content of rocks. Master Course Articulation Matrix* [LCCN: CGEO 1113]

121: Physical Geology Laboratory. 3-0-1. Preq., registration or credit in GEOL 111. Identification of minerals and rocks. Study of topographic maps and physiographic features shown thereon. Master Course Articulation Matrix* [LCCN: CGEO 1101]

122: Historical Geology Laboratory. 3-0-1. Preq., registration or credit in GEOL 112 and 121. Introduction to fossils, geologic maps, and the geologic history of selected portions of North America. Master Course Articulation Matrix* [LCCN: CGEO 1111]

201: Physical and Historical Geology of the National Parks. 0-3-3. Physical processes and earth history of the U. S. National Parks. Topics include: rock types, volcanism, plate tectonics, glaciation, shoreline processes, weathering, erosion, and cave formation.

202: Geology of Louisiana. 0-3-3. Environments and geologic history of Louisiana. Additional topics include mineral and energy resources, coastal land loss and restoration, and impact of natural disasters.

203: Introduction to Oceanography. 0-3-3. A survey of the oceans; their nature, structure, origin, physical features, life forms, circulation, composition, and natural resources. Credit will not be given for GEOL 203 if credit is given for BISC 203.

420: Directed Study of Geologic Problems. 1-3 hrs credit. Preq., senior standing. Special topics within the student's field of interest. Maximum 3 hours credit.

422: Environmental Remediation. 0-3-3. Preq., FOR 355. Evaluation of alternative surface and subsurface cleanup technologies with emphasis on site assessments, pilot studies, treatment techniques, and the preparation of corrective action plans. **(G)**

485: Coastal Marine Geology. 8-3-4. Preq., GEOL 111, 121 or 112, 122, CHEM 101, 102, 103, 104. Geomorphological features of estuarine, coastal and continental shelf environments, erosional, depositional and geochemical processes, field and laboratory methods. Five weeks at a Louisiana Universities Marine Consortium coastal laboratory.

GERMAN (GERM)

101: Elementary German. 0-3-3 each. Conversation, reading, and grammar. Master Course Articulation Matrix*

102: Elementary German. 0-3-3 each. Preq., GERM 101. Conversation, reading, and grammar. Master Course Articulation Matrix*

201: Intermediate German. 0-3-3 each. Preq., GERM 102. Conversation reading, grammar, and culture. Master Course Articulation Matrix*

202: Intermediate German. 0-3-3 each. Preq., GERM 201. Conversation reading, grammar, and culture. Master Course Articulation Matrix*

HEALTH INFORMATION MANAGEMENT (HIM)

103: Introduction to Medical Terminology. 0-3-3. A basic study of the language of medicine including word construction, definition and use of terms and an elementary study of the human anatomy, structures and functions with medical terminology application.

110: Foundations of Health Information. 0-3-3. Introduction to the health information management profession and the health record. This course provides an overview of the health record, healthcare data, and healthcare delivery systems.

120: Health Records Professional Practice. 3-0-1. Preq., HIM 110. Health records in hospitals, nursing homes, hospice, tumor registry, home health, mental health, and specialty hospitals.

128: Computer Applications for Health Care Professionals. 0-3-3. Concepts of computer technology related to healthcare information and the tools and techniques for collecting, storing, and retrieving healthcare data.

204: Medical Transcription. 3-1-2. Preq., a minimum grade of "C" in HIM 103. Introduction to transcription of record forms and supervision of the medical transcription function.

207: Coding and Classifying Diseases and Procedures. 0-3-3. Preq. BISC 225 and HIM 280. Basic coding using the latest edition of the *International Classification of Diseases*.

217: Healthcare Reimbursement. 0-3-3. A study of systems used for professional and institutional reimbursement in various healthcare settings.

229: Introduction to Health Information Technology. 0-3-3. Preq., HIM 110 and 128. Concepts of computer technology related to healthcare and the tools and techniques for collecting, storing, and retrieving healthcare data.

232: Regulatory Standards and Evaluation. 0-3-3. Preq. or Coreq., HIM 110. A survey of regulatory and accreditation agencies and their impact on healthcare organizations. Discussion of quality measures, techniques and theories including utilization review and compliance.

240: Supervisory Management for Health Care Professionals. 0-3-3. Management principles and supervisory practices for health care professionals in health care environments.

250: Legal Issues in Health Informatics and Information Management. 0-3-3. Study of the U.S. legal structure and legal theories that apply to health information practice and the electronic record environment.

251: Classification of Procedures. 0-3-3. Preq., HIM 207. Basic coding of procedures using governmentally approved classification systems and nomenclatures.

252: Classification Systems and Nomenclature Use. 0-3-3. Preq., HIM 207 and 251. A study of classification systems and nomenclatures, with emphasis on the impact to healthcare data collection and reimbursement; advanced practical application of classification systems.

278: Practica/Internship/Cooperative Education in Health Information Management. 1-8 hours credit. (8). Preq., Minimum of 2.25 GPA in curriculum and course work complete. Scheduled in the quarter of graduation. On site, supervised, structured work experiences. Application and supervision fee required

280: Fundamentals of Disease and Pharmacology. 0-3-3. Preq., BISC 225 and HIM 103. A study of the nature and cause of disease.

282: Health Care Computer Applications Laboratory. 3-0-1. Preq. HIM 110. A survey of Electronic Health Records and software applications related to healthcare information and implementation of techniques for collecting, storing and retrieving healthcare data.

299: Special Problems. 1-4 semester credit hours. Preq., consent of instructor. Selected topics in an identified area of study in Health Information Management.

312: Health Data Content & Structure. 0-3-3. Preq., HIM 229. Introduction to health information systems with an emphasis on healthcare vocabulary, standards and models, and on the computer-based patient record.

330: Systems Analysis In Healthcare. 0-3-3. Preq., HIM 312. Study of the clinical and business information applications in health care. Concepts, techniques, and tools associated with the systems development life cycle are included.

333: Introduction to Epidemiology and Applied Statistics in Health Care. 0-3-3. Preq., MATH 125. Concepts of epidemiology; biostatistics, vital statistics; data collection and presentation; study designs as related to health care organizations and their function.

350: Data Management in Healthcare. 0-4-4. Preq., HIM 312. Theory and practical hands-on experience of information engineering principles associated with data and application architectures. Includes aspects of database development using SQL.

411: Project Management. 0-3-3. In depth study of successful information system management including information systems planning, management controls, development, project management, operations and quality improvement, and human resource management.

417: Healthcare Research. 0-3-3. Preq., ENGL 303. An introduction to the application of the scientific method and research design to health information management.

430: Health Information Management. 0-3-3. Preq., MGMT 310 and HIM 110. Management principles applied to the administration of health information systems.

435: Health Informatics and Information Management. 0-3-3. Preq., HIM 350. Study of design, development, adoption and application of IT-based innovations in healthcare delivery, management and planning.

440: Basic Reimbursement and Compliance for Health Care. 0-3-3. An introduction to health care policy and practice including regulatory compliance, performance improvement, reimbursement methodologies.

478: Practica/Internship/Cooperative Education in Health Information Management. 1-8 hours credit (8). Preq., Minimum of 2.25 GPA in curriculum and course work complete. Scheduled in the quarter of graduation. On site, supervised, structured work experiences. Application and supervision fee required

490: Foundations of Health Information Management I. 0-3-3. Introduction of HIM, emphasizing health delivery systems, medical record development, data collection, access, retention and storage, and utilization of coding and reimbursement methodologies.

491: Foundations of Health Information Management II. 0-3-3. An overview of health statistics, registries, health law, quality, utilization and risk management; emphasis on electronic health record applications.

499: Special Problems: 1-4 semester credit hours. Preq., Junior standing and consent of the instructor. Selected topics in an identified advanced area of study in Health Information Management.

500: Healthcare Compliance. 0-3-3. Study and application of the essentials of healthcare compliance.

501: Healthcare Information Network Systems. 0-3-3. Study of prominent technology architectures for healthcare information systems and networks. Addresses issues related to technology standards, hardware, integration, security of information systems and networks.

502: Database Architecture. 0-3-3. Study of information engineering principles associated with data and application architectures. Includes aspects of data modeling and database development.

503: Medical Vocabularies and Classification Systems. 0-3-3. Study of issues related to standardized clinical terminology, linguistics, medical vocabularies and natural language processing.

504: Clinical Information Systems. 0-3-3. Survey of clinical computing applications and their integration to support healthcare delivery. Evaluation of such systems in regard to clinical decision making, outcomes, and data architectures.

505: Health Informatics Advanced Statistical Methods. 0-3-3. A study from a healthcare prospective of the advanced statistical methods used to evaluate problems and aid in decision making.

510: Introduction to Health Informatics. 0-3-3. A broad survey introduction to health informatics as a multidisciplinary field addressing current, emerging, and future technologies and related policy.

511: Project Management. 0-3-3. In-depth study of successful informational system management using project management techniques that include strategic planning and change management strategies.

512: Issues in Technological Change. 0-3-3. Evaluation of Issues associated with the introduction technology in the healthcare delivery environment. Theoretical principles and concepts associated with leadership and change management.

513: Evaluation of Information Systems. 0-3-3. Methodologies, techniques and barriers encountered deployment of information systems. Emphasis placed training and evaluation, documentation, interface design, legacy systems, data conversion and interoperability.

521: EHR Infrastructure. 0-3-3. Study of information systems theory, theory of electronic patient records including infrastructure and applications, and NHII initiatives. Emphasis placed on strategic planning for health information systems.

522: Computerized Decision Support. 0-3-3. Study of concepts related to decision making and decision contexts. Exploration of technology support for decision making with study of purposes, architecture development and implementation.

523: Healthcare Information Analysis. 0-3-3. A capstone course designed to employ case study, use of basic and advanced statistics applied to solve real world problems in healthcare.

530: Leadership in Healthcare. 0-3-3. Examination of the various skills, behaviors, and attitudes required for effective leadership based on the unique needs of healthcare entities.

541: Contemporary Issues in Healthcare Research. 0-3-3. Overview of a broad spectrum of healthcare and health behavior issues and programs in order to evaluate their impact on the healthcare ecosystem.

557: Special Topics: Health Informatics. 0-3-3. The topic or topics will be selected by the instructor from the various sub-areas of Health Informatics. May be repeated as topics change.

599: Capstone Project. 0-3-3. Preq., HIM 523. This course provides candidates with a final summation and application of the knowledge and skill gained during the didactic courses.

HISTORY (HIST)

101: World History to 1500. 0-3-3. A survey of civilization of the world to 1500. Major emphasis on Western Civilization. Master Course Articulation Matrix* [LCCN: CHIS 1013]; [LCCN: CHIS 1113]

102: World History since 1500. 0-3-3. A survey of civilization of the world since 1500. Major emphasis on Western Civilizations. Master Course Articulation Matrix* **(IER)** [LCCN: CHIS 1023] [LCCN: CHIS 1123]

201: History of the United States, 1492-1877. 0-3-3. A survey of American history from discovery through Reconstruction. Master Course Articulation Matrix* [LCCN: CHIS 2013]

202: History of the United States, 1877 to the Present. 0-3-3. A survey of American history from Reconstruction to the present. Master Course Articulation Matrix* [LCCN: CHIS 2023]

360: History of Louisiana. 0-3-3. A study of Louisiana history from early explorations to the present. Master Course Articulation Matrix* [LCCN: CHIS 2033]

402: History of American Foreign Policy. 0-3-3. A study of the development and expansion of American foreign policy from colonial beginnings to the present. **(G)**

403: History of England to 1688. 0-3-3. A study of the development of the English people from the earliest times to the Glorious Revolution. **(G)**

404: History of England since 1688. 0-3-3. A study of English political, social, and economic institutions and policies in the eighteenth, nineteenth, and twentieth centuries. **(G) (IER)**

406: Modern Eastern Europe. 0-3-3. Lands, peoples, and states of Eastern Europe from 1792 to the present, with emphasis on Czech, Polish, Hungarian, and Balkan regions. **(G)**

408: Hitler's Germany. 0-3-3. A study of German history since 1862 with special emphasis on the rise and impact of Adolph Hitler and National Socialism. **(G) (IER)**

409: History of Early and Imperial Russia. 0-3-3. Overview of Russian development from ninth-century origins as Kiev Rus' through Imperial period, ending in nineteenth century. **(G)**

410: History of Modern Russia. 0-3-3. A survey of Russian history with special emphasis on twentieth century developments. **(G) (IER)**

412: Classical and Late Antiquity. 0-3-3. An overview of ancient history with emphasis on Greece and Rome. **(G)**

413: Medieval Europe. 0-3-3. A survey of Europe from the decline of Rome to the advent of the Renaissance. **(G)**

414: Renaissance and Reformation. 0-3-3. A study of the political, economic, and cultural evolution of Europe from 1300 to 1648. **(G)**

415: History of the Christian Church. 0-3-3. A study of the rise and expansion of the Christian Church and its enormous influence on world history. **(G)**

417: Europe in the Age of Monarchy, 1450-1815. 0-3-3. Political, social, economic, and cultural history of Europe from the Renaissance to the French Revolution. **(G)**

418: Europe in the Era of the French Revolution and Napoleon. 0-3-3. A study of early modern Europe during the transition from the aristocratic era of the Old Regime to the Age of Revolutions. **(G)**

419: Nineteenth Century Europe. 0-3-3. A survey of political, economic, and cultural developments in Europe from the defeat of Napoleon I to the outbreak of World War I. **(G)**

420: Twentieth Century Europe. 0-3-3. A survey of political, economic, and cultural developments in Europe since the outbreak of World War I. **(G) (IER)**

423: The Civil War and Reconstruction. 0-3-3. A study of American history from the beginning of the Civil War to 1877. **(G)**

430: History of the Ancient Near East. 0-3-3. A survey of the civilizations of the Near East from earliest beginnings to 330 B. C. **(G)**

436: History of the Modern Near East. 0-3-3. A history of the Arabic world from the fifteenth century to the present. **(G) (IER)**

440: History of Latin America to 1824. 0-3-3. A survey of Latin American history from European and Indian backgrounds to 1824. **(G)**

441: History of Latin America since 1824. 0-3-3. A survey of political, economic and social developments in Latin America since 1824. **(G) (IER)**

442: History of Mexico. 0-3-3. A survey of the political, economic, and social evolution of the Mexican nation from its Indian origins to the present. **(G) (IER)**

444: History of Central America and the Caribbean. 0-3-3. The history of Central America and the islands of the Caribbean from 1492 to the present, with emphasis on the historical roots of contemporary problems. **(G) (IER)**

447: History of China. 0-3-3. Traces the development of Chinese civilization from its earliest origins to the present. **(IER)**

450: History of the Old South. 0-3-3. A study of the political, economic, and social development of the antebellum South. **(G)**

451: History of the New South. 0-3-3. A survey of the major topics of the history of the American South from Reconstruction to the present day. **(G)**

465: Early 20th Century America. 0-3-3. A study of the social, political and economic development of the United States from 1900 to the end of the New Deal. **(G)**

466: Contemporary America. 0-3-3. An examination of United States history from World War II. **(G)**

467: Vietnam, Watergate and After: America, 1960 to the Present. 0-3-3. An intensive study of United States history from the troubled 60's to the present. **(G)**

472: History of American Ideas. 0-3-3. A survey of the major forces and ideas that have shaped American history. **(G)**

474: The American Frontier. 0-3-3. A study of the American frontier from the colonial period to 1890, with special emphasis on social and economic growth. **(G)**

475: Women in History. 0-3-3. A study of women's contributions to history with special emphasis on the role of women in different eras and societies. **(G)**

478: African-American History. 0-3-3. A survey of how African Americans have contributed to US history and culture from 1500 to the present. **(G)**

480: History of Science. 0-3-3. Preq., advanced history courses and six hours of science. A descriptive survey of the history of science and its civilizational implications. **(G)**

486: Introduction to Public History. 0-3-3. Theoretical, practical, and career issues related to the practice of history in public venues, including museums, historical sites, and similar professional environments. **(G)**

489: Internship in Public History. 6-0-3 (6). Preq., HIST 486 or Permission of Instructor. This course is designed to provide practical experience toward a career in history in public venues, including museums, historical sites, archives, and similar professional environments. Course may be repeated for credit, provided the student works at a different host institution.

490: Selected Topics in History. 0-3-3 (6). Readings, discussions, and lectures in an area of current interest in the discipline of history, with topic designated by instructor. May be repeated for credit as topic changes. **(G)**

495: Senior Seminar in History. 0-3-3 (6). Advanced consideration of the sources and methods of historical inquiry through in-depth group study of a specific topic, problem, or era. May be repeated for credit as topic changes. **(G)**

501: Introduction to Historiography. 0-3-3. Seminar on the history of historical writing, with consideration of schools, theories, philosophies, and functions of history as a scholarly discipline and profession.

505: Introduction to Historical Research and Writing. 0-3-3. Lectures, readings, discussions, and practical exercises on the sources and methods of professional historical scholarship, with students producing papers based on original research.

506: Seminar in American History, to 1877. 0-3-3 (6). Intensive study of a restricted topic in American history, to 1877 (excluding the American Civil War), with topic designated by instructor. May be repeated for credit as topic changes.

507: Seminar in American History, Since 1877. 0-3-3 (6). Intensive study of a restricted topic in American history, since 1877, with topic designated by instructor. May be repeated for credit as topic changes.

510: Independent Study and Research. 3 hours credit. Independent reading and research in selected history topics.

515: Seminar in Louisiana History. 0-3-3. Selected reading and research in Louisiana History, with particular emphasis on the twentieth century.

516: Seminar in Southern History, to 1860. 0-3-3 (6). Intensive study of a restricted topic in the history of the American South, to 1860, with topic designated by instructor. May be repeated for credit as topic changes. Collaborative: transmission originates @ Tech.

517: Seminar on the American Civil War. 0-3-3. Lectures, readings, discussion, and research on the history of the American Civil War. Collaborative: transmission originates @ ULM.

518: Seminar in Southern History, Since 1860. 0-3-3 (6). Intensive study of a restricted topic in the history of the American South, since 1860 (excluding the American Civil War), with topic designated by instructor. May be repeated for credit as topic changes. Collaborative: transmission originates @ ULM.

528: Seminar on American Foreign Relations. 0-3-3 (6). Intensive study of a restricted topic in the diplomatic history of the United States, with topic designated by instructor. May be repeated for credit as topic changes. Collaborative: transmission originates @ Tech.

535: Seminar in Medieval History. 0-3-3. Selected reading and research topics in Medieval History.

540: Recent European History. 0-3-3. An intensive study of a restricted subject in recent history (to be chosen by the instructor), with an introduction to scholarly research in this field.

543: Seminar in Latin American History. 0-3-3. Lectures, reading and research on selected topic in Latin American history.

545: Seminar in Near East History. 3 hours credit. Independent study, research, and writing in Near East History, with an introduction to scholarly research in this field.

548: Seminar in East Asian History. 0-3-3. Selected reading and research topics in East Asian History.

551: European Traditions, to 1650. 0-3-3 (6). Intensive study of a topic in the history of Western civilization and culture, with topic designated by instructor. May be repeated for credit as topic changes. Collaborative: transmission originates @ Tech.

552: European Traditions, Since 1650. 0-3-3 (6). Intensive study of a topic in the history of Western civilization and culture, with topic designated by instructor. May be repeated for credit as topic changes. Collaborative: transmission originates @ ULM.

580: Seminar in the History of Science & Technology. 0-3-3 (6). Intensive study of a topic in the history of science and technology, with topic designated by the instructor. May be repeated for credit as topic changes. Collaborative: transmission originates @ Tech.

595: Current Problems in History. 0-3-3 (6). Intensive study of an issue, question, topic, or debate of current interest in the historical profession. May be repeated for credit as topic changes.

HONORS (HNRS)

100: Honors University Seminar. 0-2-1. Honors Students only. Orients new Honors Students to the University and the Honors Program; facilitates identification and application of practical study techniques and attitudes associated with college success. Counts as UNIV 100.

103: Foundations of Ancient Civilization. 0-3-3. Honors Students only. Interdisciplinary study of major works of ancient Greek, Roman, and Old Testament civilization. Satisfies ENGL 101, or 102, or HIST 101 as appropriate.

104: Foundations of Medieval and Renaissance Civilization. 0-3-3. Honors Students only. Interdisciplinary study of major works of Medieval and Renaissance civilization. Satisfies ENGL 101, or 102, or 210, or HIST 102 (**IER**) as appropriate.

105: Honors Fundamentals of Biology I. 0-3-3. Honors Students only. Not open to Biology majors. Introduction to biological concepts of cell structure and physiology, genetics, evolution, and ecology. Master Course Articulation Matrix* [LCCN:CBIO 1013]. Counts as BISC 101.

106: Honors Fundamentals of Biology II. 0-3-3. Preq., BISC 101 or HNRS 105; Honors Students only. Not open to Biology majors. Continuation of biological topics including origin of life, survey of the five kingdoms, plant and animal structure. Master Course Articulation Matrix* [LCCN:CBIO 1023]. Counts as BISC 102.

107: Honors Elementary Spanish II. 0-3-3. Preq., SPAN 101; Honors Students only. Conversation reading and grammar. Non-native speakers only. Master Course Articulation Matrix* [LCCN:CNSP 1023]. Counts as SPAN 102.

108: Honors Intermediate Spanish. 0-3-3. Preq., SPAN 102 or HNRS 107; Honors Students only. Structure, cultural reading conversation. Non-native speakers only. Master Course Articulation Matrix* [LCCN:CSPN 2013]. Counts as SPAN 201.

110: Foundations of Sociological Thought. 0-3-3. Honors Students only. An exploration of the major ideas, issues, debates, and theories concerning the relationship between individuals and societies. Counts for course work in SOC 201.

112: Foundations of Behavioral Thought. 0-3-3. Honors Students only. An exploration of the major ideas, issues, debates, and theories concerning our understanding of human behavior. Counts for course work in PSYC 102.

114: Foundations of Geographic Thought. 0-3-3. Honors Students only. An exploration of the major ideas, issues, debates, and theories concerning our conceptualization and representation of space. Counts for course work in GEOG 205 (**IER**).

115: Honors Foundation Design I. 9-0-3. Coreq., ARCH 112; Honors Students only. Introduction to two-dimensional design issues and related compositional, analytical, and representational strategies. Counts as ARCH 115.

120: Honors Engineering Problem Solving I. 3-1-2. Coreq., MATH 240, CHEM 100; Honors Students only. The engineering profession, engineering problem solving, computer applications. Counts as ENGR 120.

121: Honors Engineering Problem Solving II. 3-1-2. Preq., ENGR 120 or HNRS 120; Correq., MATH 241 or HNRS 241, CHEM 101; Honors Students only. Introduction to engineering design, engineering problem solving, computer applications. Counts as ENGR 121.

122: Honors Engineering Problem Solving III. 3-1-2. Preq., ENGR 121 or HNRS 121; Coreq., MATH 242; Honors Students only. Engineering design, engineering problem solving, computer applications. Counts as ENGR 122.

125: Honors Foundation Design II. 9-0-3. Preq., ARCH 112 and HNRS/ARCH 115; Coreq., ARCH 122; Honors Students only. Introduction to three dimensional design and related compositional, material, analytical and representational strategies. Counts as ARCH 125.

201: Honors Philosophy. 0-3-3. Honors Students only. Philosophical vocabulary; types and problems of philosophy; major philosophical positions. Master Course Articulation Matrix* [LCCN:CPHL 1013]. Counts as PHIL 201.

202: Honors Advanced General Psychology. 0-3-3. Preq., PSYC 102 or HNRS 112; Honors Students only. An intensive survey of literature and procedures in general psychology. Counts as PSYC 202 OR HNRS 202.

203: Foundations of Modern Civilization. 0-3-3. Honors Students only. Interdisciplinary study of major works of major works of modern civilization. Satisfies ENGL 102, or 211, or HIST 102 (**IER**) as appropriate.

204: Foundations of American Civilization. 0-3-3. Interdisciplinary study of major works of American civilization. Honors Students only. Satisfies ENGL 102, or 212, or HIST 201 or 202 as appropriate.

210: Foundations of Macroeconomic Thought. 0-3-3. Honors Students only. An exploration of the major ideas, issues, debates, and theories concerning the interactions of states and multinational corporations. Counts for course work in ECON 201.

211: Foundations of Microeconomic Thought. 0-3-3. Honors Students only. An exploration of the major ideas, issues, debates, and theories concerning the interactions of individuals and corporations. Counts for course work in ECON 202.

212: Foundations of American Political Thought. 0-3-3. Honors Students only. An exploration of the major ideas, issues, debates, and theories concerning the relationship between individuals and the state in the American context. Counts for course work in POLS 201.

225: Mathematics and Effective Thinking. 0-3-3. Preq., MATH 100 or MATH 101 and Honors Students Only who require no subsequent higher-level math or physics classes. Exploration of the structure of mathematics as a system of reasoning. Real problem analysis using various methods and theories. Counts for course work in Math 112 or 125 as needed.

241: Honors Calculus I. 0-3-3. Preq., MATH 240 or placement by exam; Honors Students only. Limits; derivatives, continuity differentiation rules; derivatives of algebraic, and transcendental functions; applications of differentiation; optimization, anti-differentiation; optimization, anti-differentiation, definite integrals. Fundamental Theorem of Calculus. Credit will not be given for MATH/HNRS 241 if credit is given for MATH 220 or 222. [LCCN:CMAT2113]. Counts as MATH 241.

280: Honors Dance Appreciation. 0-3-3. Honors Students only. An overview of the historical, cultural, and social impact of dance. Counts for Fine Arts (GER) course requirement.

290: Honors Music Appreciation. 0-3-3. Honors Students Only; for non-music majors. Acquaints students with knowledge and appreciation of music from several cultures and eras. Counts for Fine Arts (GER) course requirement.

291: Honors Theatre Appreciation. 0-3-3. Honors Students only. A study of Theatre and its different forms and how they affect our life and society. Counts for Fine Arts (GER) course requirement.

292: Honors Art Appreciation. 0-3-3. Honors Students and non-art majors only. Study and enjoyment of art in its various expressions. Principles for critical judgement. Counts for Fine Arts (GER) course requirement.

303: Technical Writing. 0-3-3. Honors Students only. Assignments and instructions include technical report and online writing. Counts for course work in ENGL 303.

363: Technical and Scientific Presentation. 0-3-3. Honors Students only. Presenting technical information to specialized and nontechnical audiences. Includes instruction in presentation in various forms. Counts for course work in ENGL 363.

377: Foundations of Public Rhetoric. 0-3-3. Honors Students only. Provides an individualized course of instruction for improvement in effective speaking. Counts for course work in SPCH 110 or 377.

384: Honors Creative Writing. 0-3-3. Preq., ENGL 102 or HNRS equivalent; Honors Students only. Introduction to traditional and contemporary forms of short fiction and poetry through study of selected models. Counts as ENGL 384.

389: Honors Special Topics. 0-3-3. Honors Students only. Seminar with topic to be designated by Honors Program. Will count as a 300-level elective in discipline of instructor teaching the class.

411: Honors 19th Century British Novel. 0-3-3. Preq., ENGL 211 or HNRS 203; Honors Students only. Study of the development of the British novel from Austen to the end of the nineteenth century. Counts as ENGL 411.

414: Honors Victorian Period. 0-3-3. Preq., ENGL 211 or HNRS 203; Honors Students only. Study of the major writers of the age. Counts as ENGL 414.

489: Honors Special Topics. 0-3-3. Honors Students only. Seminar topic to be designated by the instructor.

495: Honors Capstone Course. 0-1-1. Preq., Junior or Senior standing; Honors Students only. Issues important when entering the job market or considering graduate school, including resumes and cover letters, interviewing, and marketing oral and written communication skills.

499: Honors Research and Thesis. (Pass/Fail). Preq., 27 semester hours of Honors credit; Honors Students only. Registration in any quarter is for 3 semester hours. Maximum credit applicable towards the degree is 3 semester hours.

HUMAN ECOLOGY (HEC)

Courses in the School of Human Ecology are also listed under: Family and Child Studies, Food and Nutrition, and Merchandising and Consumer Studies.

257: Survey of Human Ecology. 0-3-3. An investigation of history, theoretical foundations, mission, and role of Human Ecology professionals in assisting individuals, families, and communities in achieving optimal quality of life.

267: Practica in Human Ecology. 1-3 hours credit (3). Preq., Consent of director of practica. Structured experiences in specialized areas of human ecology. Application required.

357: Professional Issues in Human Ecology. 0-2-2. Preq., HEC 257 and junior standing. A study of the diverse field of human ecology, including theoretical framework, current and future trends, and preparation for employment in professional setting.

405: Family and Consumer Sciences Methods. 0-3-3. An understanding of the family and consumer sciences education programs with emphasis on philosophy, principles and methods of teaching in family and consumer sciences areas. (G)

406: Special Problems in Human Ecology. 1-3 hours credit (12). Special offerings selected by student with approval of adviser. May be repeated for credit with Dean's permission. (G)

415: Seminar in Family and Consumer Sciences Clinical Experience. 0-1-1. Coreq., EDCI 416. Investigation, analysis, and discussion of current problems, philosophy, and trends in family and consumer sciences education.

478: Practica/Internship/Cooperative Education in Human Ecology. 1-6 hours credit (9). On site, supervised, structured work experiences. Application and program fee required.

504: Methodology in Human Ecology Research. 1-3 hours credit (3). Techniques and principles of design for experimental and educational research in human ecology disciplines.

505: Family and Consumer Sciences, and Early Childhood Education Supervision. 0-3-3. The value of supervision with emphasis on responsibilities and techniques desirable for effective working relationships with student teachers.

506: Special Problems in Human Ecology. 1-3 hours credit (12). Preq. or Coreq., HEC 504. Supervised research of adviser approved topics. May be repeated for credit with Dean's permission.

515: Human Ecology Teaching Practicum. 10-1-3. Principles and techniques in teaching a specific area of human ecology at the post secondary level. Students work with faculty and undergraduate courses in area of specialty. Application required.

546: Microcomputer Applications in Professional Practice. 0-3-3. Preq., one graduate-level statistics course, and MCS 246 or consent of instructor. Data analysis and interpretation in professional and research settings.

551: Research and Thesis in Human Ecology. (Pass/Fail). Preq., HEC 504 and a graduate level course in Statistics. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

560: Grant Writing for Human Ecology Professionals. 0-3-3. An examination and development of skills involved in identifying funding sources, and writing and submitting grant proposals.

562: Current Topics in Human Ecology. 0-3-3 (12). An in-depth study of current topics in human ecology. May be repeated for credit with change of topic.

567: Advanced Practice in Human Ecology. 15-0-3. Preq., graduate student in Human Ecology. Advanced practice experiences enabling students to apply theory in practice settings.

585: Comprehensive Examination in Human Ecology. No credit. Required for all students completing MS in Nutrition and Dietetics or Family and Consumer Sciences. Taken after graduate course work is completed or the quarter before graduation. (Pass/Fail).

INDEPENDENT STUDY (ISTY)

401: National Student Exchange. 8-12 (36). (Pass/Fail) Preq., admission to National Student Exchange. Course taken in conjunction with students participating in National Student Exchange. Credits will be transferred back from host institution after exchange. May be used up to a total of 36 semester credit hours.

498: Readings and Research. 1-3 (6) hours credit. Preq., admission to Independent Study program. Departmental course for independent research and reading. Offered by each department in the College of Liberal Arts.

499: Readings and Research. 1-3 (6) hours credit. Preq., admission to Independent Study program. Departmental course for independent research and reading. Offered by each department in the College of Liberal Arts.

INDUSTRIAL ENGINEERING (INEN)

300: Engineering Economics. 0-2-2. Economic analysis of engineering design alternatives; present, annual, and future worth; internal rate of return and benefit/cost analysis; depreciation and tax consequences.

301: Industrial Cost Analysis. 0-3-3. Accounting, budgeting, control of manufacturing costs, and cost behavior anaylsis.

315: Computer-Aided Engineering. 0-3-3. Preq., ENGR 122. Applications of computer technology in design drafting, modeling, data representation, and Visual Basic programming.

400: Engineering Statistics I. 0-3-3. Preq., MATH 242, cumulative GPA ≥ 2.0 for Math 240 through Math 242. Applications of probability distribution theory to various branches of engineering, sampling statistics, point and interval estimations, hypothesis testing.

401: Engineering Statistics II. 0-3-3. Preq., INEN 400. Six sigma techniques in quality control and improvement including process quality modeling, statistical process control, process and measurement system capability analysis, ANOVA and acceptance sampling.

402: Introduction to Operations Research. 0-3-3. Coreq. INEN 400. Preq., cumulative GPA≥ 2.0 for Math 240 through Math 242. Formulation of linear programs, solving linear programs graphically and with the simplex method, duality theory, transportation and assignment problems, network optimization, and project management.

404: Operations Research. 0-2-2. Preq., INEN 400 and 402. Industrial engineering applications of dynamic programming, decision analysis, Markov chains, and queing theory.

405: Industrial Scheduling. 0-3-3. Techniques for scheduling machines, jobs, personnel, and material in industrial environment.

407: Simulation. 0-3-3. Preq., INEN 400, 402, and 404. Discrete simulation methodology, emphasizing statistical basis for simulation modeling and modeling experimentation. Use of simulation modeling language to illustrate model architecture, inference, and optimization.

408: Manufacturing Facilities Planning. 0-3-3. Preq., INEN 300 and MEEN 321. Product design and planning processes, factory automation, equipment/manpower requirement analysis, assembly line balancing techniques, lean manufacturing and material handling principles, plant and office layout.

409: Work Design. 3-2-3. Preq., INEN 300 and junior standing. Methods engineering, work measurement, production standards, workplace analysis and design.

410: Manufacturing Systems Management. 0-3-3. Preq., INEN 402. Operations planning and productivity enhancement techniques for efficient management of manufacturing systems. The course will emphasize capacity planning, materials management, and production and inventory control.

411: Industrial Engineering Design I. 0-2-2. Preq., INEN 405, 407, 408, 409. Open-ended design problem using industrial engineering skills including work measurement, human factors, quality control, facilities planning, plant layout, operations research, etc.

412: Industrial Engineering Design II. 0-2-2. Preq., INEN 411. Continuation of INEN 411.

413: Industrial Robotics and Automated Manufacturing. 3-2-3. Preq., INEN 300. Applications of computer-integrated manufacturing techniques. Emphases will be placed on numerical control, industrial robotics, cellular manufacturing systems, and machine vision.

414: Industrial Ergonomics. 3-2-3. Preq., INEN 300 and junior standing. Applications of anthropometry and biomechanics in the design of workstations, tools, and work methods for improving productivity and work safety.

421: Capstone Design Project I. 3-0-1. Preq., INEN 405, 413, 414, and senior standing. Team-based industry sponsored design project with emphasis on project selections and evaluations. Analysis of variance, design of experiments, regression analysis, industrial safety and enginnering ethics.

422: Capstone Design Project II. 3-0-1. Preq., INEN 421. Continuation of INEN 421 with emphasis on method development, data collection, and data analysis. Continuation coverage of industrial safety and engineering ethics.

423: Capstone Design Project III. 3-0-1. Preq., INEN 422. Continuation of INEN 422 with emphasis on design evaluation and analysis of return on investment. Industrial safety and health management, engineering ethics and professionalism..

424: Seminar. 0-1-1. Instruction and practice in conference-type discussions of technical and professional matters of interest to industrial engineers.

425: Industrial Safety. 0-3-3. Principles of domestic and industrial safety.

450: Special Problems. 1-3 hours credit. Selected topics of current interest in Industrial Engineering not covered in other courses.

502: Operations Research. 0-3-3. Applications of linear programming to industrial systems, such as production and inventory control. Sensitivity analysis. Transportation and transshipment algorithms. Parametric linear programming. Convex and integer programming.

503: Management of Engineering Functions. 0-3-3. Study of the organizational structure, engineering functions, and decision-making processes used in industrial settings.

504: Systems Simulation. 0-3-3. The use of digital computer programs to simulate the operating characteristics of complex systems. Statistical considerations in sampling from a simulated process.

505: Manufacturing and Operations Analysis. 0-3-3. Operations planning and productivity enhancement techniques for efficient management of manufacturing and service systems. This course emphasizes forecasting, aggregate planning, inventory control, supply chain management, MRP, JIT, project management, and operations scheduling.

506: Dynamic Programming. 0-3-3. The principles of optimality. One- and two-dimensional processes Markovian decision processes. Lagrange multiplier technique.

507: Engineering Administration. 0-3-3. Measurement and evaluation of engineering activities. Project management and control. Development of engineering managers.

508: Human Factors in Engineering Systems. 3-2-3. Testing and instrumentation of human response to environmental conditions. Designing equipment, work place and work environment for economy and effectiveness of human work systems.

509: Economics and Decision Making. 0-3-3. Elements of economic measurement, analysis and uncertainty. Effect of income tax on decision making. Retirement and replacement analysis. Capital management. Effect of inflation on economic analysis.

511: Facilities Planning. 0-3-3. Detail planning for facilities location, product development, equipment and manpower requirements, production line analysis, assembly line balancing, and lean manufacturing.

512: Reliability Engineering. 0-3-3. Application of statistical theory in engineering design. Testing methods for determining reliability. Design of components and assemblies for reliability.

513: Inventory Control. 0-3-3. Analytical methods of determining reorder size and minimum points of various inventory system. Mathematical models with restrictions and quantity discount. Forecasting techniques and production smoothing.

514: Statistical Analysis for Six Sigma. 0-3-3. Application of statistical techniques to industrial problems, relationships between experimental measurements using analysis of variance models.

515: Logistics Planning. 0-3-3. Details how logistics systems work, order processing, and inventory management. Designing logistic networks including: placing a single facility, continuous location, multiple facilities, transportation network, tour development, and vehicle selection.

516: Production Planning and Sequencing. 0-3-3. Advanced methods in production planning. Sequencing criteria and algorithms. Job shop and flow shop sequencing. Computer application and simulation.

517: Work Design. 3-2-3. Preq., INEN 514 or other approved statistics class. Advanced topics in methods engineering, work measurement, and workplace analysis and design.

518: Project Management. 0-3-3. Impacts of organizational projects and the processes for selecting projects. Topics include defining the project, estimating schedules and costs, developing a plan, and managing risks.

519: Advanced Industrial Ergonomics. 3-2-3. Preq., INEN 514 or other approved statistics class. Advamced topics in the application of anthropometry and biomechanics to the analysis and design of workstations and work methods, emphasizing improved productivity and worker safety.

530: Advanced Topics in Manufacturing Automation and Robotics. 3-2-3. Advanced issues in the strategic approach to product design and manufacturing systems design. Integration of islands of automation. Product design for automation.

550: Special Problems. 1-4 hour(s) credit. Advanced problems in industrial engineering.

551: Research and Thesis in Industrial Engineering. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

555: Practicum. 0-3-3 (6). (Pass/Fail). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research literature.

557: Special Topics: Industrial Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of industrial engineering. May be repeated as topics change.

INFORMATION TECHNOLOGY (ITEC)

110: Foundations of Information Discovery. 0-1-1. Principles of software development, functional and non-functional requirements, preliminaries of software requirement specifications, software architecture, and fundamentals of object oriented programming. (Pass/Fail)

220: Programming and Software Development. 0-3-3. Introduction to computer programming and data structures, variables and data types, selection and iteration, object creation, collections framework, programming constructs, and code testing.

410: Project Management. 0-2-2. Information technology project planning, resource organization and controlling, overview of software engineering principles, principles of software management, planning, risk management and software cost estimation.

411: Project Experience. 0-2-2. On site, supervised, structured work experiences in the field of information technology with a predefined project focus.

420: Software Engineering. 0-2-2. Preq., ITEC 220 or equivalent. Introduction to the concepts, techniques, and practices of software engineering, prescriptive process models, object oriented concepts, UML, analysis modeling, architecture design, and web engineering.

440: Database Management Systems. 0-2-2. Data schemas, relational modeling concepts, basics of SQL, UML, XML, Indexing structures for file systems, query processing and optimization in distributed databases, and data warehousing.

460: Foundations of Data Analytics. 0-3-3. Computational paradigms of Big data analytics, characterizing velocity, variety, volume and veracity, data mining, data preprocessing, data management, model building and evaluation, and data warehousing.

INTERIOR DESIGN (IDES)

242: Universal Design and Life Safety Codes. 0-1-1. Coreq., IDES 252. An examination of Americans with Disabilities Act Guidelines and Life Safety Code as they influence the design of interior spaces.

243: Computer Applications for Interiors I. 3-0-1. Coreq., IDES 253. Introduction to software applications that facilitate design, communication and presentation in the discipline of interior design.

244: Computer Applications for Interiors II. 3-0-1. Coreq., IDES 254. Development of fundamental skills in software applications associated with design and three-dimensional modeling of interior elements and spaces.

250: Introduction to Interior Design. 0-2-2. Introductory examination of Interior Design with topical investigations into the process of design, design elements, lighting, color, surface treatments, and space planning.

252: Foundation Interior Design I. 6-0-2. Preq., ARCH 120, ARCH 122, ART 116 and IDES 250. Introductory studio problems emphasizing concept, design process, form and principles of spatial organization for interior spaces.

253: Foundation Interior Design II. 6-0-2. Preq., IDES 252. Continuation of introductory studio problems emphasizing concept, design process, form and principles of spatial organization for interior spaces.

254: Foundation Interior Design III. 6-0-2. Preq., IDES 253. Culmination of introductory studio problems emphasizing concept, design process, form and principles of spatial organization for interior spaces.

316: History of Interiors. 0-3-3. Preq., ARCH 231. A historical survey of interior space from antiquity to the present with emphasis on architectural elements, furniture and finishes.

342: Interior Materials and Finishes. 0-1-1. Coreq., IDES 352. Examination and analysis of the formal contextual, conceptual and/or operational issues associated with the selection and application of interior materials and finishes.

343: Sustainable Design for Interiors. 0-1-1. Coreq., IDES 353. Examination and analysis of the formal contextual, conceptual and/or operational issues associated with ecology and sustainability in interior design.

344: Color and Illumination. 0-1-1. Coreq., IDES 354. Examination and analysis of the nature, theory and art of applying color and light to interior environments.

352: Interior Design I. 9-0-3. Studio problems in space planning and design of interior environments with emphasis on design methodology, materials and finishes, computer technology applications and presentation.

353: Interior Design II. 9-0-3. Preq., IDES 352. Continuation of studio problems in space planning and design of interior environments with emphasis on design methodology, sustainable materials and practices, computer technology applications and presentation.

354: Interior Design III. 9-0-3. Preq., IDES 353. Continuation of studio problems in space planning and design of interior environments with emphasis on design methodology, application materials, finishes, color and light, computer technology applications and presentation.

402: Field Travel. 0-1-1. Examination and analysis of historical and/or contemporary interior environments through participation in supervised travel.

442: Issue Investigation. 0-1-1. Coreq., IDES 452. Examination, research and discussion related to contemporary issues and project types in interior design.

443: Interior Construction and Systems. 0-1-1. Coreq., IDES 453. Examination of the concepts, principles and conventions associated with the construction of interior spaces within various building envelope systems.

444: Portfolio. 0-1-1. Coreq., IDES 454. Planning, development and presentation techniques for the professional portfolio in interior design.

451: Interior Component Design. 6-1-3. Development of original interior component and/or furniture design concepts through a coordinated study and analysis of function, anthropometry, structure, materials, construction, and industrial processes. **(G)**

452: Interior Design IV. 9-0-3. Preq., IDES 354. Advanced examination of a large-scale interior project with emphasis on site and user analysis, programming, ideation, space planning, systems furnishings and schematic design synthesis.

453: Interior Design V. 9-0-3. Preq., IDES 452. Continuation of advanced examination of large-scale interior project with emphasis on interior construction, the integration of interior environment and architectural envelope through detail design and development.

454: Interior Design VI. 9-0-3. Preq., IDES 453. Culmination of advanced examination of large-scale interior project with emphasis on contract documentation: construction documents and interior materials and furnishings specifications.

456: Professional Practices. 0-3-3. Preq., Junior standing. Preparation for entering the professional practice of interior design; includes office procedures, business ethics, contract documents, specifications, and market sources, etc.

461: Theories of Interior Space. 0-2-2. Preq., Junior Standing. Selected topics related to theoretical issues of human habitation of interior spaces.

500: Design Research Methods. 0-3-3. Preq., Graduate standing or consent of instructor. An introduction to research methods applicable to the execution of scholarly investigations in the discipline of interior design.

510: Interior Design Graduate Studio. 12-0-4 (12). Preq., Graduate standing. Guided studio projects involving exhibition, furniture, or universal design.

520: Interior Design Graduate Research. 6-1-3 (9). Preq., IDES 500. Guided research projects into various aspects of interior design.

530: Interior Design Graduate Seminar. 0-3-3 (9). Preq., Graduate standing. Reading and discussion of current topics associated with interior design education, research, or practice.

540: Graduate Interior Design Internship. 20-0-6 (18). Preq., Graduate standing and consent of graduate program coordinator. Supervised interior design experience emphasizing application of principles in a research, manufacturing, or practice setting.

551: Research & Thesis in Interior Design. (Pass/Fail). Preq., IDES 500; 24 semester hours of graduate work. Preparation, development, and execution of a well-designed thesis under the supervision of the student's graduate committee. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards degree is 6 semester hours.

560: Research & Project in Interior Design. 12-0-4 (8). Preq., IDES 500. Preparation, development and execution of a comprehensive design project under the supervision of the student's graduate committee.

570: Graduate Design Exhibition. 12-0-4. Preq., IDES 560. Preparation and installation of an exhibition of a comprehensive design project or graduate design work.

JOURNALISM (JOUR)

101: News Writing. 0-3-3. May be taken with ENGL 101. Beginning course in news writing. Work on "leads" and other newspaper writing basics. Typing ability required.

102: News Writing. 0-3-3. Preq., JOUR 101. Involves principles of interviewing, advanced reporting and specialty writing such as police reporting, consumer reporting and coverage of public affairs.

210: Feature Writing. 0-3-3. Preq., JOUR 101, 102. Practical instruction in gathering material for "human interest" and feature articles of various types for magazines as well as newspapers.

220: Copy Editing. 0-3-3. Preq., JOUR 101. Course dealing with methods of editing copy and the writing of headlines.

222: Using the Internet for Research. 0-3-3. Use of the Internet as a means of conducting research, with particular emphasis on the World Wide Web. Discussion and practical application of Internet-based research techniques.

230: Editorial Writing. 0-3-3. Preq., JOUR 101. Course in the study of fundamentals and practice in editorial writing. Course includes units on recent history and current events.

275: People and Events. 0-3-3. Creative writing, as it applies to magazines and newspapers. A "how-to-get-published" primer, with oral and written critiques of work.

311: Layout and Design. 0-3-3. Preq., JOUR 220. Techniques of newspaper makeup and layout; includes writing headlines, editing wire copy, cropping and sizing photography, principles of makeup and dummying of pages.

350: Practical Reporting. 6-0-2 (12). Open only to journalism majors or minors. Preq., JOUR 101, 102, 210, 220. Writing of articles for the university newspaper upon assignment or consultation with faculty supervisor. May be repeated for up to 12 semester hours total.

360: Advertising. 0-3-3. Fundamental study of advertising principles, including information on major media.

380: Journalism History and Ethics. 0-3-3. History beginning with printing presses, early investigative reporting, Watergate, and contemporary mass-media convergence. Ethics including accuracy, fairness, conflict of interest, deception, source-reporter relationships, and privacy. (Open to all majors).

400: Media and the Law. 0-3-3. Preq., 9 hours of JOUR. Emphasis on legal rights, responsibilities related to the media, and the public's right to know. Media court cases to be considered.

420: Civic Journalism. 6-1-3. Introduction to concepts of engaging public in civic discussions and information flow using news media. Hands-on experience in news writing and data collection and analysis.

440: Media and Culture. 3-2-3. Impact of mass media on culture through lectures and laboratory experiences. Examination of historical context and current processes that shape media and culture. **(G)**

450: Public Relations. 0-3-3. Comprehensive approach into diverse functions of the practitioner as a specialist, analyst and counselor relevant to public relations' role involving monitoring public opinion.

475: Literary Journalism. 0-3-3. Focus on literary-journalistic development following WWII in America. Study of nonfiction genre fusing newspaper journalism with fictional literary techniques, often with critique of American culture.

494: Special Problems in Journalism. 0-3-3 (6). Preq., Permission of Instructor. Student will work on independent research and writing project with direct supervision of instructor. May be repeated for credit up to a total of six semester hours with a change in project.

499: Advanced Practical Reporting. 6-0-3. Preq., Journalism majors only and Permission of Instructor. Consists of practical news work in professional media, ranging from basic news beat coverage to news writing.

KINESIOLOGY (KINE)

Kinesiology 100 to 199 activity courses will stress basic techniques, rules and participation.

100: Special Group Activities. 3-0-1 (2). (Pass/Fail).

110: Adapted Physical Education. 3-0-2. For students not physically able to participate in regular activity courses. Statement from physician listing restrictions is required. (Pass/Fail)

111: Fitness Experiences for Faculty/Staff. 3-0-2. (Pass/Fail). May be repeated. To provide a safe and effective fitness program for faculty/staff. Fitness testing, individualized exercise programs, aerobic activities, weight training, flexibility, and other fitness activities.

113: Instroduction To Teaching in Physical Education. 0-3-3. Overview of the physical education profession with emphasis on philosophy, professional standards, program outcomes, and factors impacting the learning environment. Includes field-based experiences and assignments.

114: NCAA Sport Participation. 4-0-2 (6). (Pass/Fail). Preq., Freshman standing. Activity credit for participation in an NCAA sport. May be repeated for up to 6-hours credit. Will not count for Kinesiology majors/minors.

115: NCAA Sport Participation. 4-0-2 (6) (Pass/Fail). Preq., Sophomore standing. Activity credit for participation in an NCAA sport. May be repeated for up to 6-hours credit. Will not count for Kinesiology majors/minors.

116: NCAA Sport Participation. 4-0-2 (6). (Pass/Fail). Preq., Junior standing. Activity credit for participation in an NCAA sport. May be repeated for up to 6-hours credit. Will not count for Kinesiology majors/minors.

117: NCAA Sport Participation. 4-0-2 (6). (Pass/Fail). Preq., Senior standing. Activity credit for participation in an NCAA sport. May be repeated for up to 6-hours credit. Will not count for Kinesiology majors/minors.

119: Emergency Preparedness. 0-0-1. A web-based course designed to provide students with information about what to expect and what to do in the event of any of a wide range of possible emergency situations on the campus or in the community.

120: Aerobic Conditioning. 2-1-2 (4). Provide information on developing and maintaining physical fitness through aerobic conditioning.

124: Basketball. 2-1-2 (4). The fundamentals of basketball and the proper procedures for conducting the game will be emphasized.

126: Bowling. 2-1-2 (4). Fundamental techniques, rules and etiquette of bowling with provisions for practical applications will be emphasized. Activity as a form of lifetime fitness is stressed.

128: Golf. 2-1-2 (4). Basic techniques, skills, terminology, and rules of play will be presented. Students should provide their own golf clubs.

130: Jogging/Running. 2-1-2 (4). Designed for students at various levels of aerobic conditioning. Information will be provided on proper running techniques and development of appropriate running/jogging routine.

133: Racquetball. 2-1-2 (4). Designed to provide students with basic techniques, skills, terminology and rules of play for racquetball.

136: Indoor Cycling. 2-1-2 (4). Designed to provide students with information on proper cycling techniques and training in cycling. Emphasis will also include developing and maintaining physical fitness for life.

138: Swimming. 2-1-2 (4). Designed for non-swimmers or students with beginning ability. Focus will be on learning to swim using strokes designed to maximize swimming distance and floating time.

140: Tennis. 2-1-2 (4). Designed to provide students with basic techniques, skills, terminology and rules of play for tennis.

144: Weight Training. 2-1-2 (4). Designed to provide students with fundamental knowledge and techniques in strength development.

155: Special Topics in Fitness & Wellness. 1-3 hours credit (9). Designed for selected fitness activities.

160: Modern Dance. 2-1-2 (4). Beginning techniques of modern dance movements and choreography are presented.

162: Social Dance. 2-1-2 (4). Cultural, social and historical impact of ballroom dance. Students will be allowed the opportunity to experience and participate in social dances from around the world.

164: Tap Dance. 2-1-2 (4). Instruction in basic tap dance and rhythmical sounds made by movements of the feet.

170: Karate. 2-1-2 (4). Instruction and practice in the basic arm and leg techniques, stances, warm up exercise, one-step sparring will be provided.

172: Scuba. 2-1-2 (4). Classroom information and pool practice for PADI open-water certification. Scuba certification is available but not required at the completion of the class.

202: Foundations of Health and Physical Education, Fitness Wellness, and Sports Science. 0-3-3. Preq., Sophomore Standing. Designed to provide physical education students with information in the professional areas of KINE, Fitness/Wellness, and Sports Science.

203: Fundamentals of Movement and Instruction. 0-3-3. Preq., KINE113 and KINE majors/minors only. Introduction to content and instructional strategies in physical education with emphasis on skill development, assessment, progression, and developmentally appropriate practice. Includes field-based experiences and assignments.

206: Fitness for the Senior Adult. 2-1-3. May be taken by senior adults for repeated credit. Senior adult exercise programs are designed utilizing chair and water exercises, strength machines, and walking.

211: Powerlifting. 2-1-2 (4).

212: Advanced Weight Training. 2-1-2 (4). Information on proper mechanics, techniques, effective planning, and assessments based on individual goals. The student should be familiar with fundamentals of resistance training.

215: Swimming for Fitness. 2-1-2 (4). Student must be able to swim 100 yards. Swimming as a water-based exercise will be emphasized.

216: Lifeguard Training. 2-1-2. This course is designed to teach lifeguarding skills based on the American Red Cross Lifeguarding guidelines and standards. Certification is optional.

220: First Aid. 0-2-2. Lectures, discussions, and practical demonstrations in First Aid.

255: Individual Sports and Physical Activity. 3-2-3. Preq., Sophomore Standing and KINE majors/minors only. Individual sports and physical activities which include skill techniques and strategies of tennis, badminton, racquetball, bowling, archery, and golf are emphasized.

256: Aerobic Conditioning, Strength Conditioning, and Aquatics. 3-2-3. Preq., Sophomore Standing and KINE majors/minors only. Skill techniques and teaching strategies for instruction in aerobic, muscle fitness, flexibility, and aquatic conditioning for school aged children.

265: Team Sports and Group Activities. 3-2-3. Preq., Sophomore Standing and KINE majors/minors only. This course focuses on skills of performance and teaching, in the areas of team sports and group activities.

280: Dance Appreciation. 0-3-3. An overview of the historical, cultural and social impact of dance. Includes classifications of major dance styles, interpretations of dance and major contributors to dance. Master Course Articulation Matrix* [LCCN: CDNC 1013]

290: Personal and Community Health. 0-3-3. Designed to develop attitudes and practices which contribute to better individual and group health. Emphasis is placed upon major health problems of early adulthood.

292: Preventive Health and Wellness. 0-3-3. Emphasis on chronic and degenerative diseases, mental health, preventing communicable and non-communicable diseases and the role of physical fitness in preventive health.

293: Consumer and Environmental Health. 0-3-3. Directing the consumer in selection of health services and understanding the effect of environmental pollution.

300: Safety Education. 0-3-3. The social, emotional, economic, and legal impact of safety and accidents in the home, at work, and in leisure/sports activities.

301: Curriculum Innovations, Instructional Devices and Lab Instruction in Drivers Education. 3 3/4-3-4. In-depth study of curriculum materials and instructional devices and techniques including Simulation, Multimedia Driving Range, On-Street instruction, and Motorcycle.

307: Principles and Practices of Coaching Softball. 0-2-2. Preq., Sophomore standing. Emphasis on coaching competitive softball. Fundamental skills of offense and defense, training principles, scouting, strategy, and organization of practice are stressed.

313: Principles and Practices of Volleyball Coaching. 0-2-2. Preq., sophomore standing. Fundamentals of team offense and defense. Training and practice; scouting and strategy; officiating.

314: Principles and Practices of Track and Field Coaching. 0-2-2. Preq., sophomore standing. Fundamental movements involved in the different events: staffing for the different events; training and practice; officiating.

316: Exercise and Sport Psychology. 0-3-3. Psychological aspects of exercise and sport with emphasis on mental preparation for athletic performance.

326: Applied Anatomy and Kinesiology. 0-3-3. Preq., junior standing, BISC 224. Analysis of movement based on a knowledge of anatomy and physiology as applied to the function of body mechanics.

333: Motor Learning. 0-3-3. Introduction to applied aspects of motor learning, applied to exercise science, and including completion of an experimental study involving motor learning principles.

402: Measurement and Evaluation in Health and Physical Education. 0-3-3. Preq., KINE 113, 203 and admission to a teaching program. Focuses on knowledge and application of statistical methods, measurement, assessment, and evaluation in physical education.

405: Sports Medicine and First Aid. 0-2-2. Preq., Junior standing. Prevention, treatment and rehabilitation of athletic injuries and first aid procedures.

406: Health Aspects of Aging. 0-3-3. Preq., Junior standing. Provides an understanding of the health aspects of aging as it pertains to the biological, physiological, psychological, and sociological factors in mature adults. **(G)**

407: Exercise Prescription. 2-2-3. Preq., Junior standing. Provides an understanding of individualized exercise prescription design in programs to develop and maintain physical fitness through testing and re-evaluation strategies. **(G)**

408: Physiology of Exercise. 2-2-3. Preq., Junior standing. Basic human physiology with emphasis on the physiological changes and residues of exercise. Concurrent with KINE 409.

409: Measurement of Physiology Variables. 2-0-1. Preq., Junior standing. Exercise physiology laboratory experience providing students with an opportunity to measure and evaluate selected physiological parameters.

410: The Designing, Building, and Maintenance of Sport and Physical Fitness Facilities. 0-3-3. Preq., Junior standing. The equipping, designing, building, and maintenance of physical fitness and sports facilities. **(G)**

414: Introduction to Adapted Physical Activity. 0-3-3. Preq., Junior standing. To familiarize the student with the role of adapted physical education and the physical, emotional, social and learning characteristics of exceptional children. **(G)**

415: Internship. 1-6 hours. consent of instructor and within two quarters of graduation. Requires 180 clock hours in practical experiences in approved health & exercise science environment.

416: Adult Fitness Programming. 2-1-3. Preq., KINE 406, Junior standing. Course is designed to instruct individuals in implementation of fitness programs and management of the various facilities, which include fitness management. **(G)**

418: Strength and Conditioning for Improved Performance. 0-3-3. Preq., KINE 326, 407, 408, 409, Junior standing. Procedures to strengthen and condition individuals in aerobic and anaerobic activities. Exercise models, performance evaluations, exercise equipment, training ethics, and professional development are discussed. **(G)**

420: Sports and Society. 0-3-3. The focus will be on physical activity and sport participation related to other social, cultural, economic, and political developments.

425: Practicum. 3-0-1 (4). Preq., KINE Fitness/Wellness majors only. Students assist a master teacher to learn proper methods of teaching aerobics, weight training, or senior adult activities.

433: Special Problems in Kinesiology. 1-3 hour(s) credit (9). Consent of Department Head. Designed for selected problems in Kinesiology.

435: Directed Research. 1-3 hours (6). consent of instructor required. Independent readings and research on selected topics in Kinesiology.

440: Materials and Methods in Health and Physical Education in Elementary Schools. 1-3-3. Preq., Admission to a teaching program. This course is designed to prepare teacher candidates to effectively teach physical education and health to children in grades K-6. **(G)**

457: Materials and Methods in Teaching Middle and Secondary School Health and Physical Education. 1-3-3. Preq., KINE 290, 292, admission to a teaching program, senior standing. Methods, materials, and analytical skills used in teaching health and physical education. Practical application of methods, materials, and analytical skills. **(G)**

508: Research Methods in Kinesiology. 0-3-3. Introduction to the research process with emphasis on design and basic statistical procedures used in research in Kinesiology.

509: Tests and Measurement. 0-3-3. Using current research to select the best procedures to measure and test the student's physical fitness, motor ability, sports skills, and cognitive knowledge.

510: Curriculum & Assessment in Adapted Physical Education. 1-2-3. Focus on curriculum theory and development, service delivery models, student placement, development of goals and objectives, and assessment in adapted physical education.

511: Managing Behavior & Improving Performance in Adapted Physical Education. 1-2-3. Focus on intellectual and behavioral disabilities, student behavior management and performance, and systematic observation and research techniques in adapted physical education.

512: Instructional Strategies in Adapted Physical Education. 1-2-3. Focus on unique attributes of individuals with disabilities, instructional strategies including modifications, program evaluation, and professional development in adapted physical education.

513: Adapted Physical Education: From Theory to Practice. 1-2-3. Focus on practical application of best practices in adapted physical education including planning, instructional strategies, assessment, reflection, and collaboration.

515: Internship. 1-6 hours. Preq., consent of instructor. Practical experiences in approved health & exercise science environment. Six hours total credit (220 clock hours) is required for completion of MS degree.

518: Recent Literature and Research in Kinesiology. 0-3-3. Review and evaluation of reports of recent research in Kinesiology. Review of research methodology for analysis of both qualitative and quantitative nature.

520: Motor Development and Learning. 0-3-3. Nature of motor learning and development, factors affecting success in skill learning and improving physical performance.

526: Physiology of Exercise. 0-3-3. Understanding the physiological responses of the body systems to exercise, the recovery process, and systematic training regimens.

532: Laboratory Techniques in Sport Performance. 2-2-3. Demonstration of sport performance techniques, methods, and equipment used in research and clinical analyses of gait and movements involved in sports.

533: Problems in Health, Physical Education, Recreation and Athletics. 1-3 hour(s) credit (6). Consent of Department Head. Credit depends on the nature of the problem and work to be accomplished.

534: Mechanical Analysis of Motor Skills. 0-3-3. Analysis of the various motor skills to determine their relationship to basic mechanical principles, anatomical and kinesiological factors, laws of physics, etc.

535: Directed Research. 1-3 hours. Preq., consent of instructor. Independent readings and research on selected topics in Kinesiology.

536: Physiology of Exercise II. 0-3-3. Preq., KINE 526. A continuation of KINE 526 designed to enhance understanding of physiological responses to acute and chronic exercise as it relates to performance and health-related fitness.

539: Sports Psychology. 0-3-3. Course designed to explore the behavior of individuals participating in play, game and sports.

540: Sport Impact on Society. 0-3-3. The impact of sports upon the American culture with focus on competition, economics, mythology, race relations and the Olympic syndrome.

542: Mechanisms of Sport Injury & Rehabilitation. 0-3-3. Study of pathomechanics and tissue properties that define the tolerance of the human body during sport and daily activities.

545: Health Promotion and Wellness. 0-3-3. A multi-level approach toward implementing preventive health programs in school and organizational settings with emphasis on stress management, smoking cessation, and injury prevention.

546: Physiology of Strength and Conditioning. 0-3-3. Advanced methods and techniques associated with conditioning of athletes and specific populations. Sport specific conditioning of anaerobic and aerobic systems and practice of methods to specifically assess performance parameters will be addressed.

548: Administration of Sport and Exercise. 0-3-3. Provides administrators theoretical and practical knowledge in management principles and techniques, managerial responsibilities, and issues confronting professionals in sport and exercise programs.

549: Facility, Event and Human Resources Management. 0-3-3. Focus on principles and practice of facility, event and human resources management in youth and community sport, interscholastic and intercollegiate athletics, and professional sport.

551: Research and Thesis. (Pass/Fail). Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

585: Comprehensive Examination in Kinesiology. No credit. (Pass/Fail). Required for all students in all concentrations of the masters program in Kinesiology. Usually taken in the last term before graduation, but other arrangements may be made under extenuating circumstances.

LIBERAL ARTS (LBAR)

189: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

194: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

289: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

294: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

336: Integrated Music and Art Appreciation. 1-2-3. Designed to prepare teacher candidates to teach art and music within the regular curriculum and as an independent subject. For elementary education majors only.

389: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

394: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

435: Undergraduate Research. 1 - 3 hours credit (6). Introduction to methods of research. Preq., consent of instructor. Credit depends on nature and depth of problem assigned.

437: Issues in Professional Employment. 0-1-1. In this course students will prepare to assume professional roles in the world of work. The course is designed to be taken two or three quarters prior to graduation.

489: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

494: Special Topics. 1-4 hours credit (4). Selected topics in an identified area of study in the College of Liberal Arts. May be repeated for credit.

500: Orientation to Professional Practice. 0-3-3. This course will familiarize graduate students with the principal issues concerning professional practice in their chosen fields of study.

503: Special Problems. 1-3 hours credit (6). Independent study. Topics arranged to meet the needs of the student.

551: Research and Thesis. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

585: Comprehensive Examination. No credit. (Pass/Fail). Graduate standing required. Required for students taking a comprehensive examination as part of their Plan of Study in the Master of Arts programs in English or History. May be repeated only once.

589: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Liberal Arts.

594: Special Topics. 1-4 hours credit. Preq., graduate standing. Selected topics in an identified area of study in the College of Liberal Arts.

LIBRARY SCIENCE (LSCI)

201: Books and Materials for the Elementary School. 0-3-3. A study of the reading interests of children. Selection and evaluation, sources and use of materials with children. Extensive reading of children's books.

401: School Library Administration. 0-3-3. Administration of the school library with emphasis on planning for effective use of library services and materials in cooperation with instructional staff. **(G)**

402: Acquisition and Organization of Library Materials. 0-3-3. Preq., LSCI 401 or consent of instructor. Basic principles of cataloging and classifying print and non-print materials. Study of Dewey Decimal Classification System. **(G)**

403: Introduction to Reference Materials and Service. 0-3-3. Selection, evaluation and use of basic reference works. Practice in solution of typical reference problems. Emphasis on school library as learning center. **(G)**

405: Books and Materials for the Young Adult. 0-3-3. Selection, evaluation, and source utilization of print and non-print materials meeting the needs of the young adult. Extensive reading of books for the young adult. **(G)**

435: Internship in Library Science. 1-3 hours credit (6). Preq., twelve semester hours of Library Science. Supervised library science experience in the elementary or secondary school. (Pass/Fail).

440: Library Automation. 0-3-3. Preq., LSCI 210, 302 or consent of instructor. Planning and implementing automated library procedures using the most current technology. **(G)**

450: Literature for Children. 0-3-3. Designed to relate understanding of child development to knowing and using print and non-print materials with children. Practical experience in story-telling and creative drama. **(G)**

451: Workshop in School Librarianship. 0-3-3 (6). Preq., professional school experience and consent of instructor. An in-depth study of school library learning center programs. May be repeated for credit when topics vary. **(G)**

LOUISIANA EDUCATION CONSORTIUM (LEC)

700: Introduction to Doctoral Research Design. 0-3-3. This course is designed to extend the student's knowledge of and expertise in areas of research design, style, and format of writing a dissertation as well as use of graduate electronic resources and statistical analysis.

701: Utilizing Technology for Statistical Analysis in Education. 0-3-3. This course surveys procedures for using the computer in text editing, data management, and statistical processing of research data.

702: Evaluation Theory and Practice. 0-3-3. This course investigates the theories and practices associated with performance evaluation, focusing on individual, instrument, and program evaluation and the decision-making processes associated with each.

703: Qualitative Research in Education. 0-3-3. This course examines theories and methods of qualitative educational research, including ethnography, case studies, interview studies, and document analysis.

704: Sociocultural Issues in Education. 0-3-3. This course examines and analyzes sociocultural issues relating to the delivery of educational services in school districts with diverse student populations.

705: Problem Solving and Decision-Making Processes. 0-3-3. Applied strategies and techniques involved in problem-solving behaviors are presented. Models of decision-making are explored with emphasis on methods and processes in decision-making.

706: Interpersonal Communication and Conflict Resolution. 0-3-3. Methods and styles of positive interpersonal communication and techniques and methods of conflict resolution utilized by administrators and faculty are presented.

707: Curriculum Theory and Design. 0-3-3. This course focuses on school curriculum theory, design, revision, reform and critical issues.

708: Models of Teaching: Theories and Application. 0-3-3. Preq., LEC 707 or concurrent enrollment. This courses builds the requisite knowledge and skills for selecting and implementing various teaching models congruent with specific teaching and learning needs.

709: Research on Effective Teaching and Learning. 0-3-3. This course examines research-based theories and practices of teaching and learning, including diagnosing student needs and selecting appropriate learning strategies.

710: Foundations and Procedures for Professional Development. 0-3-3. This course focuses on analysis of the professional environment with emphasis on procedural strategies for professional development as evidenced by teaching, service, and research.

711: Advanced Theory and Research in Educational Leadership. 0-3-3. Conceptual models used to define and explain learning organizations and the investigation of leadership roles, strategies, and methods.

712: Advanced Principles of Organization and Administration of Schools. 0-3-3. Organization and administration of schools, including fundamental concepts of organization, administration, and management are explored.

713: Foundations of Human Resource Development. 0-3-3. Theories of human resource development and exemplary models are identified and analyzed. Utilization of human resource information system technology is included.

714: Policy Analysis and Power Structure. 0-3-3. Educational policy processes in school administration and supervision, authority and responsibility, public policy, power structure, school boards, principalships, and superintendency roles are presented.

715: Advanced Content Methodology and Techniques. 0-3-3. This courses analyzes and evaluates content-specific methods, techniques, and trends for early childhood, elementary, middle and secondary education.

716: Problems and Issues in Curriculum and Instruction. 0-3-3. This course analyzes and evaluates current curriculum concepts and designs as well as major trends in curriculum and instruction for K - 12 settings.

717: Grants Planning and Management. 0-3-3. Strategies are presented to identify relevant funding sources at the local, regional, and national levels and to prepare, submit, and manage effective proposals.

718: Principles and Practices in Instructional Supervision.0-3-3. Strategies and techniques of supervising instruction are presented and reviewed. Models of supervising instructional programs are analyzed, interpreted, and evaluated.

750: LEC Cognate/Elective. 1-6 hours credit. Course number used to register and pay fees for cognates and approved electives, which are not listed in the respective course databases of LEC member institutions. Course number is replaced at the end of the enrollment period by actual cognates/electives titles.

776: Doctoral Internship Seminar. 0-3-3. This seminar is designed to enable students to demonstrate and apply knowledge bases and dispositions acquired/refined in the other program components and courses and to share their internship experiences with other students.

777: Internship. 3-6 hours credit (Pass/Fail). This course is a supervised on-site educational experience in curriculum, instruction, supervision, or administration.

788: Research Design Seminar. 0-3-3 (6). This course is a research seminar concentrating on the selection and utilization of qualitative and quantitative field-based research designs.

799: Dissertation. 3 hours credit (12). (Pass/Fail).

LEC CURRICULUM & INSTRUCTION (LECC)

705: Decision Making for School Improvement and Accountability. 0-3-3. Various problem-solving models and decision-making strategies are examined, applied in authentic educational settings, and evaluated for their impact in the area of school improvement and accountability.

706: Communication and Collaboration in Problem Solving. 0-3-3. The primary objectives of this course are to present methods and styles of communication which facilitate positive interpersonal communication and to introduce techniques and methods of conflict resolution which may be effectively utilized by administrators and faculty.

707: Curriculum Theory and Design. 0-3-3. This course focuses on school curriculum theory, design, revision, reform and critical issues.

708: Models of Teaching; Theories and Application. 0-3-3. Preq., LECC 707 or concurrent enrollment. This course is designed to build requisite knowledge and skills for selecting and implementing teaching models congruent with specific teacing and learning needs.

709: Research on Effective Teaching, Learning, and Assessment. 0-3-3. This course examines research-based theories and practices of teaching, learning, and assessment including diagnosing student needs and selecting appropriate learning strategies.

710: Professional Development Design and Implementation. 0-3-3. This course focuses on analysis of the professional environment with emphasis on procedural strategies for professional development as evidenced by teaching, service, and research.

715: Advanced Content Methodology and Techniques. 0-3-3. This course is designed to conduct, analyze, and evaluate pertinent research methodology in the areas of Early Childhood/Elementary/Secondary Education.

722: Instructional Design and Technology Integration. 0-3-3. The focus of this course is on the design, development, implementation, and evaluation of instructional materials that are created according to instructional design principles.

723: Brain-Based Education. 0-3-3. This course is designed to introduce doctoral candidates to the methods, procedures and educational implications of brain-based research.

LEC DISSERTATION (LECD)

778: Advanced Research Design. 0-3-3. Preq., Admission to Candidacy. Students will receive needed knowledge and skills to complete the dissertation prospectus and to begin the dissertation using quantitative, qualitative and mixed methods of inquiry. The product of this class is a prospectus.

799: Dissertation. 3-12 hours credit (Pass/Fail). This course is an independent application of research design that leads to the completion of an original research study under the guidance of the student's doctoral committee.

LEC FOUNDATION (LECF)

700: Introduction to Doctoral Research Design. 0-3-3. This course is designed to extend the student's knowledge of and expertise in areas of research design, styles, and format of writing a dissertation as well as the use of graduate electronic resources and statistical analysis.

701: Applied Statistical Analyses. 0-3-3. Preq., LECF 700 or other doctoral level research course. This course surveys procedures for using the computer in text editing, data management, and statistical processing of research data. Emphasis is placed on using the Statistical Package for the Social Sciences (SPSS) for data analyses and hypothesis testing. Participants, through use of the Education Doctoral Laboratory, are able to produce printouts and learn to interpret their findings.

702: Evaluation Theory and Practice. 0-3-3. This course is designed to investigate the current theory and practice of program, personnel and student evaluation. Emphasis is placed on instrument design, administration, data collection and analyses, and reporting of the evaluation.

703: Qualitative Research in Education. 0-3-3. This course is designed to examine theories and methods of qualitative research including ethnography, case studies, interview studies, and document analysis. Emphasis is placed on selecting methods appropriate to the research question form among qualitative and other research traditions.

704: Sociocultural and Diversity Issues. 0-3-3. This course examines and analyzes socio-cultural issues as they relate to the existence and delivery of educational programs and services in schools for equity and excellence in the education of diverse student populations.

LEC INTERNSHIP (LECI)

776: Doctoral Internship Seminar. 0-3-3. This seminar is designed to enable students to demonstrate and apply knowledge bases and dispositions acquired/refined in the other program components and courses and to share their internship experience with other students.

777: Doctoral Internship. 3 hours credit (6). This course provides supervised onsite educational experiences in curriculum, instruction, supervision, or administration. (Pass/Fail)

LEC LEADERSHIP (LECL)

705: Decision Making for School Improvement and Accountability. 0-3-3. Various problem-solving models and decision-making strategies are examined, applied in authentic educational settings, and evaluated for their impact in the area of school improvement and accountability.

707: Curriculum Theory and Design. 0-3-3. This course focuses on school curriculum theory, design, revision, reform and critical issues.

711: Advanced Theory and Research in Educational Leadership. 0-3-3. This course is designed to explore conceptual models used to define and explain learning organizations and the investigation of roles, strategies, and methods used by educational leaders.

712: Organization and Administration of Schools. 0-3-3. This course is designed to provide a study of the organization and administration of schools in the United States. Fundamental concepts of organization, administration, and management are explored.

713: Foundations of Human Resource Development. 0-3-3. This course is designed to investigate theories of human resource development as exemplary models are identified and analyzed.

714: Law, Policy, and Ethics. 0-3-3. This course is designed to provide an indepth study of the educational policy process in public school administration and supervision, including authority and responsibility as well as power and influence.

720: Building Effective Partnerships. 3 credit hours. Advanced study and application of leadership theories and skills to develop effective educational partnerships with public, civic, government and community organizations, as well as the broader community.

721: Leading Effective Teaching and Learning. 0-3-3. The primary objectives of this course are to develop instructional leadership skills for analyzing effective taching/learning behaviors, implementing selected leadership methods for the specific organizational process of staff development, and communicating an awareness of multicultural issues impacting the school.

MANAGEMENT (MGMT)

201: Supervisory Techniques. 0-3-3. Basic supervision of small employee groups including employee hiring and dismissal, planning and organizing work assignments, evaluating performance, necessary records, and legal aspects.

310: Management of Organizations. 0-3-3. Preq., junior standing. Introduction to fundamental principles of management practice with a particular emphasis on developing an understanding of human behavior in organizations. Master Course Articulation Matrix* [LCCN: CMGM 3103]

333: Operations Management. 0-3-3. Preq., QA 233. Concepts and strategies concerning the management of production and operations processes in manufacturing and service organizations; capacity; quality and inventory management; planning and control systems. Master Course Articulation Matrix* [LCCN: CMGM 3213]

340: Small Business Management and Entrepreneurship. 0-3-3. Organizing and operating the small business, with special attention to personal qualifications, capital requirements, location, sources of assistance. Master Course Articulation Matrix* [LCCN: CMGM 3413]

360: Introduction to Leadership and Leadership Development. 0-3-3. Preq., Junior standing. A study of basic leadership concepts and leader development using an interactional framework that depicts effective leadership as a function of leaders, followers, and situations.

400: Entrepreneurship/New Venture Creation. 0-3-3. Preq., MGMT 340. A study of the entrepreneur's role in business, including an introduction to the process of developing an idea into a feasible business plan. Master Course Articulation Matrix* [LCCN: CMGM 3513]

401: Internship in Management I. 3 hours credit. (Pass/Fail) Preq., consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

402: Internship in Management II. 3 hours credit. (Pass/Fail) Preq., consent of instructor and senior standing. On site, supervised, structured work experiences in the field of business.

415: Negotiation. 0-3-3. Preq., MGMT 310. A study of the theory and process of negotiation, with an emphasis on developing individual skills for negotiating in a variety of management situations.

419: Collective Bargaining. 0-3-3. Preq., ECON 202 or 215, and MGMT 470. History of American labor union movement, collective bargaining, labor-management problems, and government and labor relations. Considerable emphasis is given to case studies. MGMT 320 at GSU. **(G)**

440: Advanced Business Leadership Theory and Research. 0-3-3. Preq., MGMT 310. A critical examination of current leadership theories (including neocharismatic, transformational, authentic, and servant leadership) and the associated research.

460: Strategic Sourcing. 0-3-3. Preq., MKTG 300. Principles of procurement and analysis of purchasing problems, with emphasis on quality and quantity control of pricing policy inspection, and standards of performance. **(G)**

468: Human Resource Management for Entrepreneurs. 0-3-3. Preq., MGMT 310. Examines the unique challenges facing entrepreneurs with regard to recruiting and managing employees, including issues for personnel law. (Cannot be taken for credit if student has credit for MGMT 470).

470: Human Resource Management. 0-3-3. Preq., MGMT 310. A study of the functions and procedures in personnel management with emphasis on the procurement, development, maintenance and utilization of the work force. (Cannot be taken for credit if student has credit for MGMT 468). **(G)** Master Course Articulation Matrix* [LCCN: CMGM 3313]

472: Compensation Systems. 0-3-3. Preq., MGMT 468 or MGMT 470. Design of total compensation systems with emphasis on compensation policies, programs, and practices including job analysis, position descriptions, job evaluation and job design.

474: Logistics Technology, Innovation and Management. 0-3-3. Preq., MGMT 333. Course topics include supply chain strategy, logistics information systems, order management and fulfillment, inventory, forecasting, transportation, warehousing, materials handling, and facility network design.

475: Industrial Management. 0-3-3. Preq., MGMT 333. Management principles as applied to industrial production with emphasis on manufacturing strategy, just in time, quality control, scheduling, plant layout, and supplier relations.

476: Systems and Operations Management. 0-3-3. Preq., MGMT 333. Advanced studies and problems in the planning, management, and control of industrial operations. Scheduling, capacity, and shop floor control are emphasized.

477: Supply Chain Management. 0-3-3. Preq., MGMT 333. The management of the supply chain from product/process design, procurement, and manufacturing to final delivery to the consumer using the SAP information system.

478: Staffing Organizations. 0-3-3. Preq., MGMT 468 or MGMT 470. Readings, problems and cases in human resource management. Analysis of current problems and future prospects are emphasized. **(G)**

485: International Business Management. 0-3-3. Preq., MGMT 310. Readings and cases in international business: governmental activities, regionalism, market opportunities, structure of international companies, company intelligence, human relations, operating policies, procedures and problems. **(IER)** Master Course Articulation Matrix* [LCCN: CMGM 4213]

494: Management Principles. 0-0-3. Self-paced course in management sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail)

510: Contemporary Management. 0-3-3. An analysis of management principles, functions, and practices with a particular emphasis on the application of theory to contemporary management issues and problems.

537: Human Resources Management. 0-3-3. Preq., MGMT 510 or consent of instructor. An advanced course in human resource management with an emphasis on personnel functions, within the context of the strategy, structure, and environment of contemporary organizations.

540: Principled Business Leadership. 0-3-3. Theories, concepts, and practical applications necessary for leaders to guide individuals, work units, and organizations in the achievement of goals are examined.

544: Advanced Production and Operations Management. 0-3-3. Preq., MGMT 510 or consent of instructor. An in-depth analysis of production/operations concepts, methods, and techniques from a systems perspective.

550: Directed Study in Management. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of management.

560: Materials Management. 0-3-3. Preq., MGMT 510 or consent of instructor. Basic concepts of the materials management function including quality management, MRP II, scheduling, inventory management, purchasing, materials handling, JIT, and manufacturing strategy.

571: Organizational Behavior. 0-3-3. Preq., MGMT 510 or consent of instructor. A seminar with emphasis on theories and concepts of the behavioral sciences relevant to the internal operations of the organization.

595: Administrative Policy. 0-3-3. Preq., All core MBA courses must be completed. A synthesis of the material covered in the courses required for the MBA. Specific problems and cases are used to develop executive decision-making.

601: Research Methods I. 0-3-3. Preq., QA 605. An in-depth study of principles, theories, objectives, techniques, and problems as applied in social science research.

602: Research Methods II. 0-3-3. A course designed to introduce the student to the collection, analysis, and interpretation of survey research data with an emphasis on the application of multivariate statistical techniques.

603: Advanced Seminar in Research. 0-3-3 (6). Requires Doctoral standing or special permission from instructor. May be repeated once for credit. The seminar will cover research methods and current trends in research. Critical evaluation of research is required.

604: Preparing Publishable Research. 1-3 hours. Requires Doctoral standing. Integration of literature, methods, and statistics in management. Students work independently with faculty to develop research papers for publication. Oral presentation of research required.

610: Current Research Issues in Management. 0-3-3. A seminar emphasizing the nature of theory and theory development and the analysis of current theoretical and empirical literature within the field of management.

615: Seminar in Behavioral Research Methodology. 0-3-3. May repeat one time for credit. Analysis and intensive study of research and research methodology utilized in the behavioral sciences. The method of science as applied to management is emphasized.

629: Organization Theory. 0-3-3. Preq., MGMT 510 or consent of instructor. Requires Doctoral standing. May require additional class meetings. A macro approach to the study of complex organization emphasizing current research findings. Credit will not be given for MGMT 629 if credit is given for MGMT 539.

637: Human Resources Management. 0-3-3. Preq., MGMT 510 or consent of instructor. Requires Doctoral standing. May require additional class meetings. An advanced course in human resource management with an emphasis on personnel functions, within the context of the strategy, structure, and environment of contemporary organizations. Credit will not be given for MGMT 637 if credit is given for MGMT 537.

639: Seminar in Strategy & Organizational Theory. 0-3-3. Preq., MGMT 510 or consent of instructor. A doctoral seminar focusing on strategy and organization theory with emphasis on theoretical and empirical research and its application.

644: Advanced Production and Operations Management. 0-3-3. Preq., MGMT 510 or consent of instructor. Requires Doctoral standing. May require additional class meetings. An in-depth analysis of production/operations concepts, methods, and techniques from a systems perspective. Credit will not be given for MGMT 644 if credit is given for MGMT 544.

650: Directed Study in Management. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of management.

660: Materials Management. 0-3-3. Preq., MGMT 510 or consent of instructor. Requires Doctoral standing. May require additional class meetings. Basic concepts of the materials management function including quality management, MRP II, scheduling, inventory management, purchasing, materials handling, JIT, and manufacturing strategy. Credit will not be given for MGMT 660 if credit is given for MGMT 560.

671: Organizational Behavior. 0-3-3. Preq., MGMT 510 or consent of instructor. Requires Doctoral standing. May require additional class meetings. A seminar with emphasis on theories and concepts of the behavioral sciences relevant to the internal operations of the organization. Credit will not be given for MGMT 671 if credit is given for MGMT 571.

685: Comprehensive Exam in Management. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in management. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in management. Requires consent of graduate director.

MARKETING (MKTG)

300: Marketing Principles and Policies. 0-3-3. Preq., Junior Standing. Marketing functions; institutions; policies and strategies with their business, economic, and social implications. Master Course Articulation Matrix* [LCCN: CMKT 3003]

307: Personal Selling**.** 0-3-3. Preq., MKTG 300. A study of the selling process with emphasis on personal communication between buyers and sellers and how these communications enhance value. Master Course Articulation Matrix* [LCCN: CMKT 3203]

320: Consumer Behavior. 0-3-3. Preq., MKTG 300. A study of the consumer and the relation to the marketing process.

348: Leadership in Strategic Sports Marketing and Administration. 0-3-3. A survey course introducing the key concepts and issues involved in creating value through effectively positioning and managing the brand aspects of sports businesses.

390: Services Marketing. 0-3-3. Preq., MKTG 300 or consent of instructor. Study of value creation through effective deployment of resources for designing, delivering, and managing customer experiences in services industries such as healthcare, hospitality, and entertainment.

401: Internship in Marketing I. 3 hours credit. (Pass/Fail) Preq., consent of instructor and junior standing. On site, supervised, structured work experiences in the field of business.

420: Integrated Marketing Communication. 0-3-3. Preq., MKTG 300. A study of the analysis of principles of successful marketing communications including advertising and social networking enabling the student to appraise their effectiveness and their social and practical significance.

425: Sales Management. 0-3-3. Preq., MKTG 307 or consent of instructor. Relation of sales department to other departments; types of sales organizations, management of sales force; market analysis; price policies, sales budgets; distribution costs.

435: Retailing. 0-3-3. Preq., MKTG 300 and senior standing. Retail organization supply chain concerns for effective management of services and visual communication at the point of sale. Master Course Articulation Matrix* [LCCN: CMKT 3103]

473: Marketing Administration. 0-3-3. Preq., MKTG 320 and MKTG 307, 420, 435, 482, or 485: and senior standing. An in-depth analysis and use of marketing principles to construct marketing plans and decisions utilizing current studies, readings, and simulations.

482: Marketing Research. 0-3-3. Preq., MKTG 300, QA 233 and senior standing. A consideration of marketing research including data collection tools (surveys, social networks), and data analysis tools (descriptive statistics) to generating market intelligence.

485: International Marketing. 0-3-3. Preq., MKTG 300 or consent of instructor. International marketing opportunities and principles; marketing tools as a means of adapting the individual domestic business firm and its marketing methods to the international environment. **(IER)**

494: Principles of Marketing. 0-0-3. Self-paced course in marketing sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail)

530: Marketing Management. 0-3-3. A course to introduce the student to the role of the marketing manager in the development and implementation of strategies in the areas of products, pricing, channels, and promotion.

533: Advanced Marketing Research. 0-3-3. Preq., MKTG 530 or consent of instructor. An in-depth study of research philosophy, theory, objectives, techniques, and problems as applied to marketing.

537: Seminar in Buyer Behavior. 0-3-3. Preq., MKTG 530 or consent of instructor. An in-depth examination of the conceptual and theoretical foundations of consumer and industrial buyer behavior.

550: Directed Study in Marketing. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of marketing.

600: Survey of Marketing and Strategy. 0-3-3. Preq., MKTG 530 or consent of instructor. A survey of the marketing literature examining theoretical and empirical research including promotion, buyer behavior, distribution, ethics, global marketing, pricing, product development, and marketing strategy.

601: Research Methods I. 0-3-3. Preq., QA 605. An in-depth study of principles, theories, objectives, techniques, and problems as applied in social science research.

602: Research Methods II. 0-3-3. A course designed to introduce the student to the collection, analysis, and interpretation of survey research data with an emphasis on the application of multivariate statistical techniques.

603: Advanced Seminar in Research. 0-3-3 (6). Requires Doctoral standing or special permission from instructor. May be repeated once for credit. The seminar will cover research methods and current trends in research. Critical evaluation of research is required.

604: Preparing Publishable Research. 1-3 hours. Requires Doctoral standing. Integration of literature, methods, and statistics in marketing. Students work independently with faculty to develop research papers for publication. Oral presentation of research required.

610: Seminar in Marketing Management. 0-3-3. Preq., MKTG 530 or equivalent. A survey of two of the four elements of the marketing mix (place, price, product, and promotion). An emphasis is placed on major topics of managerial and research interest.

615: Seminar in Marketing. 0-3-3 (6). May be repeated one time for credit. An examination of concepts and research findings related to selected topics in marketing. Presentation and critical evaluation of reports from related disciplines.

620: Advanced Topics in Marketing Management. 0-3-3. Preq., MKTG 530 or equivalent. A survey of two of the four elements of the marketing mix (place, price, product, and promotion). An emphasis is placed on major topics of managerial and research interest.

637: Seminar in Buyer Behavior. 0-3-3. Preq., MKTG 530 or consent of instructor. Requires Doctoral standing. May require additional class meetings. An in-depth examination of the conceptual and theoretical foundations of consumer and industrial buyer behavior. Credit will not be given for MKTG 637 if credit is given for MKTG 537.

640: Marketing Theory. 0-3-3. Preq., MKTG 530 or equivalent. A survey of the philosophy of science and the evolution of marketing ideas, concepts, and theories. The influence and contribution of individuals to marketing concepts are emphasized.

650: Directed Study in Marketing. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of marketing.

685: Comprehensive Exam in Marketing. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in marketing. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in marketing. Requires consent of graduate director.

MATHEMATICS (MATH)

099: Preparation for College Mathematics. 0-4-4. Required if Mathematics ACT score is less than 19, or Mathematics SAT is less than 460. Real numbers; exponents; polynomials and factoring; algebraic fractions; linear equations and inequalities; quadratic equations; graphing; radicals. (Pass/Fail)

100C/100B: College Algebra. 0-5-5. Preq., Mathematics ACT score between 19 and 21 inclusive, or Mathematics SAT score between 460 and 510 inclusive, or successful completion of MATH 099. MATH 100B-C covers the same material as MATH 101 and includes additional supplementary review material. **Credit will not be given for MATH 100B-C if credit is given for MATH 101 or 102**. Master Course Articulation Matrix* [LCCN: CMAT 1213]

MATH100C: 0-3-3. Radical expressions; rational exponents; complex numbers; quadratic, absolute value, rational equations; systems of linear equations; inequalities; functions; conics; graphs; inverse, exponential, logarithmic functions; applications. **Concurrent enrollment in the corresponding section of MATH 100B is required.** Master Course Articulation Matrix*

MATH100B: 2-0-2. **(Pass/Fail)** Supplementary review material including rational exponents, integer exponents, multiplying polynomials, factoring, rational expressions. **Concurrent enrollment in the corresponding section of MATH 100C is required.** A grade of S will be assigned in MATH 100B if and only if the student earns a minimum grade of D in MATH 100C. A student who drops MATH 100C and wishes to continue attending class to be better prepared for repeating MATH 100B-C may remain enrolled in MATH 100B for the remainder of the quarter. Such a student who does continue to attend class will be assigned a grade of NC in MATH100B. Master Course Articulation Matrix*

101: College Algebra. 0-3-3. Preq., Mathematics ACT score is greater than or equal to 22, or Mathematics SAT score is greater than or equal to 520. Radical expressions; rational exponents; complex numbers; quadratic, absolute value, rational equations; systems of linear equations; inequalities; functions; conics; graphs; inverse, exponential, logarithmic functions; applications. Credit will not be given for both MATH 100 and MATH 101, or MATH 101 and MATH 102. Master Course Articulation Matrix* [LCCN: CMAT 1213]

102: Applied Algebra for College Students. 0-3-3. Preq., Mathematics ACT score between 19 and 21 inclusive, or Mathematics SAT score between 460 and 510 inclusive, or successful completion of MATH 099. Emphasis on applications involving: solving equations and inequalities; function properties and graphs; linear, quadratic, polynomial, exponential, and logarithmic functions. Credit will not be given for MATH 102 if credit is given for MATH 100B/C or MATH 101. Master Course Articulation Matrix* [LCCN: CMAT 1203]

112: Trigonometry. 0-3-3. Preq., Mathematics ACT score is greater than or equal to 26, or Mathematics SAT score is greater than or equal to 590, or Placement by Exam or math 100, or MATH 101. Solution of right triangles, reduction formulas, functions of multiple angles, trigonometric equations, inverse functions, and complex numbers. Credit will not be given for MATH 112 if credit is given for MATH 212. Master Course Articulation Matrix* [LCCN: CMAT 1223]

113: Plane Geometry. 0-3-3. Preq., MATH 240. A course in plane Euclidean geometry for a student who is planning to teach high school geometry.

125: Algebra for Management and Social Sciences. 0-3-3. Preq., Mathematics ACT score is greater than or equal to 26, or Mathematics SAT score is greater than or equal to 590, or Placement by Exam or MATH 100, or MATH 101. Linear and quadratic equations and functions, graphs, matrices, systems of linear equations, mathematics of finance, sets, probability and statistics, exponential and logarithmic functions. Master Course Articulation Matrix* [LCCN: CMAT 1313] or [LCCN: CMAT 1103]

130: Contemporary Mathematics. 0-3-3. Preq., MATH 100, or MATH 101, or MATH 102. Exploration of the structure of mathematics as a system of reasoning. Real problem analysis using various methods and theories. Master Course Articulation Matrix*

203: Introduction to Number Structure. 0-3-3. Preq., MATH 100 or MATH 101; Early Childhood, Elementary, and Middle School Education majors only. Developing number sense and concepts underlying computation, estimation, pattern recognition, and function definition. Studying number relationships, systems, and theory. Applying algebraic concepts to solve problems.

204: Conceptual Geometry and Quantitative Analysis. 0-3-3. Preq., MATH 203; Early Childhood, Elementary, and Middle School Education majors only. Studying the geometry of one, two, and three dimensions and applications to problems in the physical world. Exploring probability and statistics in real-world situations.

212: Applied Technical Mathematics with Calculus. 0-3-3. Preq., Mathematics ACT score greater than or equal to 26, or Mathematics SAT score is greater than or equal to 590, or Placement by Exam, or MATH 101. Applied trigonometry, vectors, basic applied differential and integral calculus for professional aviation. Credit will not be given for MATH 212 if credit is given for MATH 112.

220: Applied Calculus. 0-3-3. Preq., MATH 100 or MATH 101, and MATH 112 or Placement by Exam. Functions and graphs, the derivative, applications of derivatives, indefinite integrals, application of definite integrals. Credit will not be given for MATH 220 if credit is given for MATH 222 or 240 or 241 or 242.

222: Calculus for Business Administration and Economics. 0-3-3. Preq., MATH 125 or MATH 240, or placement by exam. Functions and graphs, the derivative, the indefinite integral and the definite integral; applications as applied to business and economics. Credit will not be given for MATH 222 if credit is given for MATH 220 or 241 or 242. Master Course Articulation Matrix* [LCCN: CMAT 2103]

223: Applied Calculus for Electrical Technology. 0-3-3. Preq., MATH 220. Applications of calculus and differential equations to electrical technology; includes integration techniques, series, differential equations, and transforms.

240: Precalculus. 0-3-3. Preq., one of (A) or (B):

(A): High school trigonometry or MATH 112 and one of the following: Mathematics ACT score of 26 or better, or Mathematics SAT score of 590 or better, or MATH 101, or

(B): MATH 100 and 112.

Functions, graphs, polynomial functions; trigonometric functions, exponential and logarithmic functions and equations; inverse functions; introduction to analytic geometry. Credit will not be given for MATH 240 if credit is given for MATH 220. Master Course Articulation Matrix* [LCCN: CMAT 1233]

241: Calculus I. 0-3-3. Preq., MATH 240 or placement by exam. Limits; derivatives, continuity differentiation rules; derivatives of algebraic, and transcendental functions; applications of differentiation; optimization, anti-differentiation, definite integrals, Fundamental Teorem of Calculus. Credit will not be given for MATH 241 if credit is given for MATH 220 or 222. Master Course Articulation Matrix* [LCCN: CMAT 2113]

242: Calculus II. 0-3-3. Preq., MATH 241. Techniques of integration, areas and volumes, numerical integration, improper integrals, single variable continuous statistics, exponential and normal distributions, Central Limit Theorem. Credit will not be given for MATH 242 if credit is given for MATH 220 or 222.

243: Calculus III. 0-3-3. Preq., MATH 242. Vectors, three-dimensional coordinates, double and triple integrals, vector valued functions and motion in space.

244: Calculus IV. 0-3-3. Preq., MATH 243. Differentiation of functions of several variables, vector calculus, Stokes' theorem, Divergence theorem, multivariable optimization, Lagrange multipliers, infinite sequences, power series, Taylor series.

245: Differential Equations. 0-3-3. Preq., MATH 244. Separable differential equations, linear constant coefficient differential equations (homogenous and inhomogeneous), Laplace transforms, series solutions, linear systems, Euler's methods.

307: Fundamentals of Mathematics. 0-3-3. Preq., MATH 243. Sets, relations, functions, equations, inequalities, proofs, development of the integers and rational numbers.

308: Introduction to Linear Algebra. 0-3-3. Preq., MATH 244. Matrices, systems of linear equations, vectors, vector spaces, linear transformations, eigenvalues and eigenvectors.

311: Discrete Mathematics I. 0-3-3. Preq., MATH 242. Logic, sets, functions, finite and infinite sets, permutations and combinations, Fibonacci number, Euclidean algorithm.

313: Introductory Numerical Analysis. 0-3-3. Preq. or Coreq., MATH 245. Numerical techniques for finding roots of equations, solving systems of equations, approximating functions, derivatives and integrals, and solving differential equations (Runge-Kutta method).

401: College Geometry. 0-3-3. Preq., MATH 113 or equivalent, and MATH 243. Logical systems and basic laws of reasoning, axiomatic geometry, geometric transformations, selected Euclidean geometry, non-Euclidean and projective geometries. **(G)**

405: Linear Algebra. 0-3-3. Preq., MATH 308. Study of linear systems, matrices, decomposition theorems, determinants, vector spaces and subspaces, linear transformations and representations by matrices.

407: Partial Differential Equations. 0-3-3. Preq., MATH 245. Solution of linear first order equations. Formation and solution of second order problems of parabolic, elliptic, and hyperbolic type. **(G)**

408: Introduction to Abstract Algebra. Preq., MATH 307 or MATH 311. Fundamental set concepts, groups, rings, integral domains, fields, polynomials.

414: Numerical Analysis. 0-3-3. Preq., MATH 245, knowledge of a programming language. Roots of polynomial and other nonlinear equations. Interpolating polynomials. Numerical differentiation. Numerical integration. Direct methods for solving linear systems. **(G)**

415: Numerical Analysis. 0-3-3. Preq., MATH 245 and knowledge of a programming language. Numerical applications of linear algebra. Curve fitting. Function approximation. Numerical solution of systems of equations, differential equations, systems of differential equations, boundary value problems. **(G)**

416: Abstract Algebra. 0-3-3. Preq., MATH 408. Number theory, equivalences, and congruences, groups, ideals. **(G)**

420: Mathematical Methods for Engineering and Physics. 0-3-3. Preq., MATH 245. Introduction to advanced mathematical methods used in physics, including vectors and tensors, complex functions and integration, boundary value problems, Fourier series, and Fourier transforms. This is a cross-listing of PHYS 410. Credit will not be given for MATH 420 if credit is given for PHYS 410.

425: Nonlinear Dynamics and Chaos. 0-3-3. Preq., MATH 245. Introduction to phase space variables, computational solutions to linear and nonlinear differential systems, bifurcations, phase portraits, limit cycles, chaotic systems, maps, and fractals. This is a cross-listing of PHYS 445. Credit will not be given for MATH 425 if credit is given for PHYS 445. **(G)**

435: Introduction to Graph Theory. 0-3-3. Preq., MATH 307 or 311 or 408. Fundamental concepts of undirected and directed graphs, trees, connectivity, planarity, colorability, network flows, Hamiltonian and Eulerian graphs, matching theory and applications. **(G)**

445: Theory of Functions of Complex Variables. 0-3-3. Preq., MATH 244. Complex numbers, analytic functions, elementary functions, mapping elementary functions, integrals, power series, residues, poles, conformal mappings, applications of conformal mappings. **(G)**

450: Ordinary Differential Equations. 0-3-3. Preq., MATH 245 and 482. First-order equations, second-order linear equations, general linear equations and systems, existence and uniqueness theorems, plane autonomous systems. **(G)**

460: Number Theory. 0-3-3. Preq., MATH 307 or MATH 311. Divisibility properties of integers, prime numbers, congruences, number theoretic functions. **(G)**

470: Introduction to Topology. 0-3-3. Preq., MATH 244,. Introduction of concepts, metric spaces, countability axioms, separation axioms, connectedness, compactness, product spaces, continuous mappings and homeomorphisms, homotopy, quotient spaces. **(G)**

482: Introduction to Real Analysis. 0-3-3. Preq., MATH 244 and MATH 311 or 307. Rigorous introduction to the analysis of functions of one real variable; limits, continuity, derivatives, Riemann integration. **(G)**

483: Introductory Analysis. 0-3-3. Preq., MATH 482. Functions in abstract spaces, limits and continuity in metric spaces, differentiation in multidimensional spaces and Lebesgue integration in measure spaces.

490: Topics in Mathematics. 0-3-3 (9). Various topics in the field of Mathematics. May be repeated for credit. **(G)**

491: Undergraduate Research in Mathematics or Statistics. 1-3 hours credit (6). Directed research. Topics and course policies to be established by instructor for each student.

505: Linear Algebra. 0-3-3. Preq., MATH 308. Study of linear systems, matrices, decomposition theorems, determinants, vector spaces and subspaces, linear transformations and representations by matrices.

507: Partial Differential Equations. 0-3-3. Preq., MATH 407. Continuation of MATH 407. Existence, uniqueness, and representation of solutions, problems in higher dimensions, Green's formulas, multiple Fourier series, Fourier transforms, boundary value problems in infinite domains.

510: Functional Analysis. 0-3-3. Preq., MATH 470 or 483 or 583. Linear spaces, normed spaces, metric spaces, Banach spaces, Hilbert spaces.

515: Numerical Analysis. 0-3-3. Preq., Consent of instructor. Numerical analysis of problems in linear algebra, norms for vectors and matrices, convergence properties of sequences and series of vectors and matrices, convergence of iterative techniques for linear systems. Numerical differentiation and integration. Numerical solutions of differential equations.

517: Advanced Numerical Analysis. 0-3-3. Preq., MATH 515 or consent of instructor. Curve fitting techniques. Function approximation techniques. Approximating eigenvalues. Numerical solutions of nonlinear systems of equations. Numerical solution of differential equation and systems of differential equations and boundary value problems.

520: Advanced Mathematical Methods for Engineering and Physics. 0-3-3. An advanced treatment of the approaches used to formulate solutions to physical problems, such as boundary value problems, variational methods, and approximate solutions. Credit will not be given for MATH 520 if credit is given for PHYS 510.

525: Nonlinear Dynamics and Chaos. 0-3-3. Mathematical and computational description of nonlinear systems in terms of phase space variables, bifurcations, phase portraits, limit cycles, chaotic systems, Lyapunov stability. Credit will not be given for MATH 525 if credit is given for PHYS 545.

535: Graph Theory. 0-3-3. Preq., MATH 435 or consent of instructor. Fundamental concepts of graph theory, connectivity and traversability, algebraic and topological methods, graph minors, extremal graph theory, planarity, colorability, and random graphs.

551: Research and Thesis in Mathematics. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

555: Practicum. 0-3-3 (3). (Pass/Fail). Preq., 12 semester hours of graduate work. Solution of a problem in mathematics; appropriate literature survey; development of mathematical research techniques. Maximum credit allowed is 3 hours.

574: Numerical Solution for PDE I. 0-3-3. Preq., MATH 407, 414. Finite element method, weak form problems. Linear element, triangular element, and rectangular element methods for elliptic and parabolic PDEs.

575: Numerical Solution for PDE II. 0-3-3. Preq., MATH 574. Finite difference schemes and their accuracy, stability, and convergence. Schemes for parabolic, hyperbolic, and elliptic PDEs.

583: Introductory Analysis. 0-3-3. Preq., MATH 482. Functions in abstract spaces, limits and continuity in metric spaces, differentiation in multidimensional spaces and Lebesgue integration in measure spaces.

584: Topics in Algebra. 0-3-3 (15). May be repeated for 3 hours credit each time.

585: Topics in Discrete Mathematics. 0-3-3 (15). May be repeated for 3 hours credit each time. Topics depend on faculty's area of expertise, but can include matroid theory, fixed point theory in ordered sets, order and graph reconstruction, or splitter theorems for graphs.

586: Topics in Analysis. 0-3-3 (15). May be repeated for 3 hours credit each time.

587: Topics in Applied Mathematics. 0-3-3 (15). May be repeated for 3 hours credit each time.

588: Topics in Topology. 0-3-3 (15). May be repeated for 3 hours credit each time.

599: Graduate Training Seminar. 1-4 hours credit (15). Preq., Consent of instructor. Guided and/or directed study, readings, discussion, observation, and training in the teaching of college mathematics. (Pass/Fail)

655: Mathematical Modeling. 0-3-3. Preq., MATH 245 and STAT 620,. Building deterministic and probabilistic models; applications from physical and life sciences. Transient and stationary models, stability, and optimal solutions. Model validation: acceptance, improvement, or rejection.

MECHANICAL ENGINEERING (MEEN)

215: Engineering Materials Laboratory. 3-0-1. Preq., credit or registration in MEMT 201. A laboratory course studying the experimental behavior of engineering materials. Labs will include hardness testing, impact testing, tensile testing, and heat treating of materials.

292: Mechanical Engineering Computer Applications. 0-3-3. Coreq., MATH 245. Application of modern computer programming principles to mechanical engineering problems. Numerical solutions of linear and nonlinear algebraic equations, numerical quadrature problems, and ordinary differential equations.

321: Manufacturing Processes. 3-1-2. Preq., MEMT 201. A study of the processes used in manufacturing machine parts. Designing for manufacturability. Laboratory is operational practice and demonstrations of machine tools, foundry, and welding.

332: Thermodynamics II. 0-3-3. Preq., ENGR 222, and cumulative GPA $\geq$ 2.0 on Math 241 through Math 244. Continuation of ENGR 222. Cycle analysis and design, study of gas mixtures, thermodynamic property relations, chemical reactions, combustion, and thermodynamics of fluid flow.

334: Thermodynamics II. 0-2-2. Preq., ENGR 222, and cumulative GPA $\geq$ 2.0 on Math 241 through Math 244. Continuation of ENGR 222. Study of gas mixtures, thermodynamic property relations, chemical reactions, combustion, and thermodynamics of fluid flow.

350: Computer-Aided Modeling. 3-0-1. Preq., ENGR 220 and cumulative GPA $\geq$ 2.0 on Math 241 through Math 244, and Cumulative GPA $\geq$ 2.7 on all coursework. Construction of virtual system models using constructive solid geometry, swept volumes, and trimmed parametric surfaces with engineering applications.

351: Computer-Aided Modeling. 3-1-2. Preq., Cumulative GPA $\geq$ 2.0 on Math 241 through Math 244. Construction of virtual systems models using constructive solid geometry, swept volumes, and trimmed parametric surfaces with engineering applications.

353: Heat Transfer. 0-3-3. Preq., MATH 245, ENGR 222, MEEN 350; Coreq., MATH 313. Fundamental concepts of heat transfer including conduction, convection, and radiation. Introduction to thermal systems design.

361: Advanced Mechanics of Materials. 0-3-3. Preq., MEEN 350 and MEMT 211. Theories of stress and strain, failure criteria, energy methods, design for static strength, design for fatigue strength.

363: Dynamics of Machine Elements. 0-3-3. Preq., MEEN 350 and MEMT 203. Kinematics and kinetics of machine elements such as linkages, cams, and gear trains.

371: Dynamic Systems. 3-2-3. Preq., MEEN 350, ENGR 221, MATH 245, 313, MEMT 203. Modeling and design of dynamic mechanical and fluid systems. Introduction to linear vibrations and automatic controls. Numerical and Laplace transform solutions to ordinary differential equations.

382: Basic Measurements. 3-1-2. Preq., ENGR 221, and cumulative GPA$\geq$ 2.0 on Math 241 through Math 244. Techniques and instruments for making and analyzing measurements in engineering.

400: Mechanical Engineering Seminar. 3-0-1. Preq., credit or registration in MEEN 480. Professionalism, ethics, and service for mechanical engineers.

413: Composite Materials Design. 0-3-3. Preq., MEEN 361. An introduction to modern composite materials. Application of lamination theory to analysis of composites. Deformation and failure of composites. Structural design using composite materials. **(G)**

414: Failure Analysis. 0-3-3. Preq., MEEN 361. An introduction to failure analysis. Using analysis of failed parts to determine the cause of failure. Using failure analysis techniques to design to avoid failure.

431: Energy Conversion Systems. 0-3-3. Preq., MEEN 332. Analysis and design of energy conversion systems. Emphasis on steam turbine and gas turbine electrical power plants. Introduction to emerging energy conversion technologies.

434: Cryogenic Systems. 0-3-3. Preq., MEEN 332. Analysis and design of systems which produce, maintain, or utilize low temperatures; liquefaction systems; refrigeration systems; separation and purification systems; storage systems. **(G)**

435: Internal Combustion Engines. 0-3-3. Preq., MEEN 332, 353. Theory of IC engines. Fuels, combustion, and thermodynamics. Carburetion, fuel injection, and lubrication. Mechanical design of a typical engine.

436: Air Conditioning and Refrigeration. 0-3-3. Preq., MEEN 332 and 353, MEMT 313. Analysis and design of heating, ventilating, and air conditioning systems for residential, commercial, and industrial applications.

446: Advanced Fluid Mechanics. 3-2-3. Preq., MEMT 313 and MATH 245. Principles of viscous fluid flow including dimensional analysis and similarity, duct flows, boundary layer flow, turbomachinery, flow measurement and control, and design of fluid systems. **(G)**

448: Gas Dynamics. 0-3-3. Preq., MEEN 332 and MATH 245. Study of the fundamental laws applied to compressible fluid flow. Isentropic flow, normal and oblique shocks, Prandtl-Meyer, Fanno, Rayleigh flow, and supersonic design. **(G)**

449: Introduction to Computational Fluid Dynamics. 0-3-3. Preq., MATH 313 and MEMT 313. The fundamentals of computational fluid dynamics (CFD); review of numerical methods and fluid mechanics; application of numerical techniques for solution of sample fluid dynamics problems.

450: Special Problems. 1-4 hours credit. Preq., senior standing and consent of instructor. Topics selected will vary from term to term for the purpose of covering selected topics of current importance or special interest.

451: Thermal Design. 3-2-3. Preq., MEEN 353 and MEMT 313. Design of thermal components and systems.

462: Machine Element Design. 0-3-3. Preq., MEEN 361. Application of strength of materials to the design of typical machine elements.

465: Machine Element Design. 0-2-2. Preq., MEEN 361. Application of principles of strength of materials to the design of typical machine elements.

469: Prevention of Mechanical Failure. 0-3-3. Preq., MEEN 361. Analysis, prediction and prevention of failures in a structure or machine part during the design phase. **(G)**

475: Mechatronics. 4-2-3. Preq., MEEN 371. A study of the interface between controllers and physical systems; principles of electromechanical design, digital and analog circuitry, actuation, sensing, embedded control, and real-time programming.

476: Feedback Control Systems. 3-2-3. Preq., MEEN 371. The analysis, design and synthesis of mechanical systems employing feedback control. Methods of determining system stability. Typical mechanical control elements and their transfer functions.

477: Mechanical Vibrations. 3-2-3. Preq., MEEN 371. Introduction to free and forced linear vibration of discrete and continuous mechanical systems. Analysis of translational and rotational systems using analytical and numerical methods.

478: Engineering Acoustics. 0-3-3. Preq., MATH 245. Analysis and design of systems for noise control, including vibration isolation, silencers, room acoustic treatment, and acoustic barriers. **(G)**

480: Capstone Design Project I. 3-0-1. Preq., MEEN 215, 321, 451, 462. Open-ended, team-based engineering design project that draws on the student's entire academic experience with emphasis on idea generation and conceptual design.

481: Capstone Design Project II. 3-0-1. Preq., MEEN 480. A continuation of MEEN 480 project with emphasis on detailed system design.

482: Capstone Design Project III. 3-0-1. Preq., MEEN 481. A continuation of MEEN 481 project with an emphasis on prototype construction and testing.

486: Mechanical Engineering Laboratory. 3-0-1. Preq., MEEN 353, 361, 382, MEMT 313. Design and performance of laboratory experiments in mechanical engineering.

488: Solids Modeling in Engineering Design. 0-3-3. Preq., MEEN 350. Engineering design using 3-D graphics, constructive solid geometry, boundary representations, parametric surfaces, and data exchange standards. **(G)**

497: Finite Element Methods for Engineers. 0-3-3. Preq., MEEN 350, 353, and 361. Introduction to approximation methods in engineering using finite elements. Physical and mathematical theory, computer applications.

499: Technical Enrichment Course. 3-0-1. (6) Preq., consent of instructor. (Pass/Fail). May be repeated for a maximum of 6 hours of credit. Varying new technologies. Does not count toward graduation in Mechanical Engineering. Contact the department for more information.

517: Advanced Durability of Materials. 0-3-3. Preq., ENGR 220 and MEMT 201. This course examines advanced engineering aspects of corrosion, fatigue, and fracture; how service environment influences design; and how to analyze, predict or prevent these influences.

531: Advanced Thermodynamics. 0-3-3. Fundamental laws of thermodynamics; entropy and entropy production; kinetic theory of gasses; statistical thermodynamics; quantum thermodynamics for various systems.

542: Advanced Heat Transfer I. 0-3-3. Steady and transient conduction heat transfer; analytical solutions; approximate solutions; numerical methods.

543: Advanced Heat Transfer II. 0-3-3. Continuation of MEEN 542. Principles of forced and natural convection in laminar and turbulent flow; thermal radiation.

545: Potential Flow. 0-3-3. Basic principles and analytical methods for the motion of an inviscid, incompressible fluid. Eulerian equations. Conformal transformation. Mapping of flows. Rotation, circulation, and vorticity.

546: Viscous Flow I. 0-3-3. Study of the governing principles and methods in viscous fluid flow. Solutions of the integral and differential equations for laminar flow. Digital computer applications.

547: Viscous Flow II. 0-3-3. Preq., MEEN 546. Study of transition, turbulence, and compressibility in viscous flow. Theory of stability of laminar flows. Fundamentals of turbulent flow.

549: Computational Fluid Dynamics. 0-3-3. The fundamentals of computational fluid dynamics (CFD); review of numerical methods and fluid mechanics; application of numerical techniques for solution of sample fluid dynamics problems.

550: Special Problems. 1-4 semester hours. Advanced problems in mechanical engineering. The problems and projects will be treated by current methods used in professional practice.

551: Research and Thesis in Mechanical Engineering. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

553: Thermal Stresses. 0-3-3. Thermal stresses in structures; plane stress problems; thermal stresses in plates and shells; thermoelastic instability; thermal fatigue; creep and inelastic thermal stresses at high temperatures.

555: Practicum. 0-3-3 (6). (Pass/Fail). Preq., 12 semester hours of graduate work. Analytical and/or experimental solution of an engineering problem; technical literature survey required; development of engineering research techniques.

557: Special Topics: Mechanical Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of mechanical engineering. May be repeated as topics change.

566: Design Optimization. 0-3-3. Preq., MEEN 467. Constrained nonlinear minimization algorithms applied to mechanical engineering design problems.

568: Advanced Vibrations. 0-3-3. Analytical and numerical treatment of nonlinear and multidegree-of-freedom vibration problems in mechanical engineering.

571: Advanced Engineering Dynamics. 0-3-3. Fundamentals of Newtonian dynamics principles of work and energy, D'Alembert's principle, Hamilton's principle, LaGrange equation. Central force motion, virial theorem. Rigid body motion and robotics.

593: Advanced Finite Element Methods. 0-3-3. Development of the finite methods element using the variational formulation. Applications in structures, fluid mechanics, and heat transfer.

MECHANICS AND MATERIALS (MEMT)

201: Engineering Materials. 0-2-2. Preq., ENGR 122. A study of the basic principles which relate the internal structure of materials to their mechanical, physical, and electrical properties.

203: Dynamics. 0-3-3. Preq., ENGR 220. Kinematics and kinetics of particles and solid bodies in rectilinear, rotational, and plane motion; energy methods, linear impulse and momentum.

206: Statics and Strength of Materials. 3-2-3. Preq., PHYS 209. Mechanics of rigid and deformable bodies, force systems, stresses and strains, fundamental concepts of static equilibrium, centroids, moments of inertia, and friction, and basic beam design.

211: Intermediate Strength of Materials. 3-1-2. Preq., ENGR 220, cumulative GPA≥ 2.0 for Math 241 through Math 243. Mechanics of deformable bodies. Axial, shear, torsion and bending. Inelastic and indeterminate problems.

212: Intermediate Statics & Mechanics of Materials. 0-3-3. Preq., ENGR 220 and cumulative GPA≥ 2.0 for Math 241 through Math 243. Continuation of ENGR 220. Mechanics of rigid and deformable bodies. Axial, shear, torsion and bending. Inelastic and indeterminate problems.

312: Dynamics. 0-2-2. Preq., ENGR 220 and PHYS 201. Kinematics and kinetics of particles and solid bodies in rectilinear, rotational and plane motion, energy methods, linear impulse and momentum.

313: Elementary Fluid Mechanics. 3-2-3. Preq., ENGR 222, MEMT 203, and cumulative GPA≥ 2.0 for Math 241 through Math 244. Properties of fluids, fluid statics. Continuity, energy, and impulse-momentum equations. Steady flow in pipes and open channels. Fluid measurements. General fluid mechanics/hydraulics laboratory.

411: Advanced Engineering Materials. 0-3-3. Preq., MEMT 201 and MEEN 361. Introduction to advanced materials. Examination of self-healing, shape memory, electrorhealogicals, peizoelectrics and other smart materials. Diffusion, thermal processing, advanced welding practice are also presented.

417: Durability of Materials. 0-3-3. Preq., ENGR 220 and MEMT 201. This course examines the engineering aspects of corrosion, fatigue, and fracture, how service environment influences design life, and how to predict or prevent these influences.

508: Finite Element Analysis. 0-3-3. Linear and nonlinear finite element analysis of continual and discretized structures; use of finite element computer programs to solve typical structural problems.

511: Modern Engineering Materials. 0-3-3. An introduction to modern engineering materials with an emphasis on light weight or high strength materials such as polymers, composites, and high strength steels.

517: Advanced Durability of Materials. 0-3-3. Preq., ENGR 220 and MEMT 201. This course examines advanced engineering aspects of corrosion, fatigue, and fracture, how service environment influences design, and how to analyze, predict or prevent these influences.

563: Theory of Elasticity. 0-3-3. General equations of elasticity; plane stress and plane strain; torsion and flexure of bars; Hertz contact stresses.

564: Plates and Shells. 0-3-3. Pure bending of plates; laterally-loaded plates; membrane theory of shells; bending of cylindrical and spherical shells.

565: Continuum Mechanics. 0-3-3. Introductory treatment of the fundamental, unifying concepts of the mechanics of continua.

577: Advanced Strength of Materials. 0-3-3. Energy methods, advanced bending theory, torsion, stress concentrations, failure theory and elastic stability.

588: Inelastic Deformation. 0-3-3. Analytical and numerical modeling of inelastic deformation in metals, polymers and ceramics, including plasticity, creep, viscoelasticity, and viscoplasticity.

MERCHANDISING AND CONSUMER STUDIES (MCS)

108: Professional Career Orientation. 0-2-2. Structured experiences in career assessment and exploration, leadership, and communication in the MCS industry. Open to non-majors.

118: Pattern Application and Construction. 6-1-3. Introduction to basic clothing construction and fit. Emphasis on techniques, commercial patterns, and ready-to-wear construction.

208: Introduction to the Merchandising Industry. 0-3-3. Survey of merchandising industry from conception to consumer use. Career assessment and exploration in the MCS industry. Open to non-majors.

219: Textiles. 3-2-3. Study of fiber properties and production of textiles including introduction to basic textile testing and performance evaluation.

220: Textiles Lab. 3-0-1. Coreq., MCS 219. Introduction to basic textile testing.

229: Product Quality Analysis. 0-3-3. Analysis and evaluation of apparel product development and manufacturing. Focus on design, style, and construction specifications as related to quality, price, and performance.

238: Cultural Perspectives in Fashion. 0-3-3. Study of meanings of dress and apperarance with emphasis on needs of individuals and families with recognition of cultural, aesthetic, economic, and psychological factors.

246: Computer Applications in Personal and Family Management. 0-3-3. An introduction to the use of word processing, spreadsheet, and presentation software for more effective management of personal and family related tasks.

248: Fashion Merchandising Software. 6-1-3. Computer applications in industry-based software. Focus on design basics and digital portfolio development for merchandising.

256: Individual and Family Management. 0-3-3. A systems approach to the management of personal and family resources.

268: Product Design. 3-2-3. Preq., MCS 118, 219 and 248. Application of principles related to the creation, fabrication and execution of product design.

275: Family and Consumer Financial Decision Making. 0-3-3. Behavior of the consumer with reference to economic decision making and expenditure patterns relevant to current lifestyles.

298: Field Study Tour in Merchandising and Consumer Studies I. 3-0-1 (3). Preq., Application required. Structured educational field study experiences in merchandising, marketing, and/or design. May be repeated up to three times for credit.

308: Merchandising Buying and Management. 0-3-3. Preq., MCS 208 and ACCT 201. Concepts and theories in buying and management of merchandise in retail organizations.

326: Promotions. 0-3-3. Preq., MCS 248. Techniques and principles in the promotion of products and services for targeted consumer segments, with an emphasis on communication and print media presentation.

368: Multi-Channel Retailing. 0-3-3. Study of and analysis of strategies used by retailers to integrate product marketing with emphasis on e-tailing, m-commerce, and direct marketing.

388: Retail Event Planning and Coordination. 0-3-3. Study and application of principles associated with planning, promoting, and coordinating special events for a variety of audiences.

419: Textile Design. 0-3-3. Preq., MCS 268. Study of textile design with an emphasis on industry processes, end-use, product quality, and technology.

426: Trends in Housing. 0-3-3. Social aspects of housing including zoning, government regulations, and purchase considerations.

429: Global Fashion Retailing. 0-3-3. Preq., MCS 208. Domestic and international issues, including legislation and trade regulations, that arise among sellers, government, and consumers.

439: Historic Costume I. 0-3-3. Development of costume prior to 1800 with emphasis on social, economic, and aesthetic influences on its design.

440: Historic Costume II. 0-3-3. Development of costume since 1800, with emphasis on social, economic, and aesthetic influences.

446: Advanced Computer Applications for Personal and Family Management. 0-3-3. Preq., MCS 246. Advanced study in the use of microcomputers in personal and family management.

466: Consumer Relations. 0-3-3. Preq., HEC 327 or JOUR 450 or consent of instructor. Professional strategies and tactics in consumer studies programs.

468: Apparel Design II. 6-1-3. Preq., MCS 268. Flat pattern and draping techniques in developing original design, including an introduction to pattern making software.

488: Visual Merchandising. 3-2-3. Preq., MCS 248. Promotion of products through visual merchandising techniques including display, store layout and design.

498: Field Study Tour in Merchandising and Consumer Studies II. 6-1-3 (6). Structured educational experiences in major domestic or international industry centers. Application required.

590: Trends in Merchandising and Consumer Studies. 0-3-3 (12). An in-depth study of selected topics related to current issues, developments, and future projections in the field of merchandising and consumer studies.

MICRO SYSTEMS ENGINEERING (MSE)

401: Fundamentals of Microfabrication Processes. 0-3-3. Preq., PHYS 202 and MATH 245. Study of microfabrication processes including patterning, additive, and etching processes used for the realization of microelectronic ultra large-scale integration (ULSI) and microelectromechanical systems (MEMS) technologies.

402: Microsystems Principles. 0-3-3. Preq., MSE 401. Application of engineering design and analysis procedures for equipment and microfabrication processes utilized in the manufacture of microelectronic and microelectromechanical systems (MEMS).

403: Microfabrication Applications and Device Fabrication. 3-2-3. Preq., MSE 402. Microfabrication processes, process integration and applications for the realization of microelectromechanical and microelectronic devices.

404: Advanced Materials for Micro/Nano Devices and Systems. 0-3-3. Preq., MEMT 201 and ELEN 334. Fundamentals of advanced materials used for the realization of micro/nano devices and systems, emphasizing the properties and characteristics of various materials.

405: Nanotechnology Principles. 0-3-3. Fundamentals of nanotechnology, emphasizing the basic principles, materials, fabrication, measurement, and applications of nanotechnology.

406: Micro/Nano Scale Materials Measurements and Analysis. 0-3-3. Preq., PHYS 202. Fundamentals of micro/nano scale materials measurements and analysis, based on modern techniques.

407: Advanced Microfabrication with CAD. 0-3-3. Preq., MSE 401. Advanced microfabrication process development and integration with the aid of computer-aided process modeling and simulation.

457: Special Topics: Micro Systems Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of micro systems engineering. May be repeated for a maximum of 9 credit hours with a change of course content.

501: Fundamentals of Microfabrication Processes. 0-3-3. Study of microfabrication processes including patterning, additive, and etching processes used for the realization of microelectronic ultra large-scale integration (ULSI) and microelectromechanical systems (MEMS) technologies.

502: Microsystems Principles. 0-3-3. Preq., MSE 501. Application of engineering design and analysis procedures for equipment and microfabrication processes utilized in the manufacture of microelectronic and microelectromechanical systems (MEMS).

503: Microfabrication Laboratory. 3-0-1. Preq., MSE 502. Laboratory experience in the fabrication of a microelectronic or microelectromechanical device using a variety of microfabrication processes.

504: Advanced Materials for Micro/Nano Devices and Systems. 0-3-3. Preq., MSE 501. Fundamentals of advanced materials used for the realization of micro/nano devices and systems, emphasizing the properties and characteristics of various materials.

505: Nanotechnology Principles. 0-3-3. Fundamentals of nanotechnology, emphasizing the basic principles, materials, fabrication, measurement, and applications of nanotechnology.

506: Micro/Nano Scale Materials Measurements and Analysis. 0-3-3. Fundamentals of micro/nano scale materials measurements and analysis, based on modern techniques.

507: Advanced Microfabrication with Computer-Aided Design. 0-3-3. Preq., MSE 503. Advanced microfabrication process development and integration with the aid of computer process modeling and simulation.

508: Advanced Microelectronic Devices with Computer-Aided Design. 0-3-3. Preq., MSE 507 and ELEN 535. Principles of operation and analysis of advanced microelectronic devices with the aid of computer device modeling and simulation.

510: Microsystems Design, Fabrication, and Testing Laboratory. 8.5-1-3. Prereq., MSE 502, Coreq., MSE 503. The design, fabrication, and testing of a simple microsystem, leading to a detailed technical project report. This course is available to masters students in the Microsystems Engineering program only.

512: Biotechnology Principles. 0-3-3. Fundamentals of molecular biotechnology, emphasizing the basic principles, the tools and techniques employed, and the widespread applications of this technology.

557: Special Topics: Micro Systems Engineering. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-areas of micro systems engineering. May be repeated for a maximum of 9 credit hours with a change of course content.

609: Microsystems Analysis with Computer-Aided Design. 0-3-3. Preq., MSE 507. Principles of operations of Microsystems and their analysis with the aid of computer-based design and modeling tools.

610: Microsystems Design with Computer-Aided Design. 0-3-3. Preq., MSE 609. Design and development of Microsystems with the aid of computer-based design and modeling tools.

MOLECULAR SCIENCES AND NANOTECHNOLOGY (MSNT)

502: Research Methods. 0-3-3. An introduction to basic methods used in scientific research, including formulation of problems, literature search, proposal preparation, and communication of research findings.

503: Topics in Molecular Sciences and Nanotechnology. 1 - 3 hours credit (6). Independent study. Topics and course policies to be established by instructor for each student. May be repeated for credit up to 6 semester hours with topic change.

504: Molecular Sciences and Nanotechnology Seminar. 0-1-1. Supervised organization and presentation of topics from peer-reviewed literature or student's own research, as well as attendance at and recording of seminars given by others. Maximum credit applicable towards the degree is one semester hour.

505: Nanotechnology Principles. 0-3-3. Fundamentals of nanotechnology, emphasizing the basic principles, materials, fabrication, measurement, and applications of nanotechnology.

506: Nanofabrication by Self-Assembly. 0-3-3. Principles and techniques for self-assembly of films and structures on the nanometer scale. Topics covered will include Langmuir-Blodgett, nanolithography and nanodevices based on nanoassembly, layer-by-layer self-assembly techniques, and electrochemical polymerizations.

510: Selected Topics in Molecular Sciences. 0-3-3 (6). Topic or topics will be selected by the instructor from the various scientific disciplines that fall under the umbrella of molecular sciences. May be repeated for credit up to 6 semester hours with topic change.

511: Selected Topics in Nanotechnology. 0-3-3 (6). The topic or topics will be selected so as to expose students to current research areas in nanotechnology. May be repeated for credit up to 6 semester hours with topic change.

521: Principles of Cell and Molecular Biology. 0-3-3. Principles of cell and molecular biology, including molecular structure and function, cellular processes, bioenergetics, and regulation of metabolism.

549: Practicum in Molecular Sciences and Nanotechnology. 0-3-3. (Pass/Fail). Preq., 12 semester hours of graduate work. Experimental or computational study of a relevant problem in one of molecular sciences and nanotechnology research areas.

551: Research and Thesis in Molecular Sciences and Nanotechnology. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for three semester hours credit or multiples thereof. Maximum credit applicable towards the degree is six semester hours.

610: Doctoral Seminar in Molecular Sciences and Nanotechnology. 0-3-3. (Pass/Fail). Required for PhD/MSNT studeents each Fall. The seminar will cover research methodology, presentations on current research by faculty, student, and visiting scientists. Only 3 semester hours may apply towards the degree.

650: Directed Study in Molecular Sciences and Nanotechnology. 1-3 hours of credit (6). Preq., Permission of Instructor. Directed in-depth study of a highly specialized topic for doctoral students. Topics and course policies to be established by instructor for each student.

651: Research and Dissertation. Registraton in any quarter may be for 3 semester hours or multiples thereof, up to a maximum of 9 semester hours per quarter. Maximum total credit allowed is 30 hours. (Pass/Fail)

657: Selected Topics in Molecular Sciences and Nanotechnology. 0-3-3. Preq., Permission of Instructor. Lectures to be selected by the instructor on topics in molecular biology, chemistry, materials science, or nanotechnology.

685: Doctoral Qualifying Examination. No credit. Preq., Doctoral standing required. Required for all students seeking to take the qualifying examination in Molecular Sciences and Nanotechnology. Successful completion is a pre-requisite for admission to candidacy. (Pass/Fail)

686: Oral Comprehensive Examination. No credit. Preq., MSNT 685. Required for all students seeking to take the oral comprehensive examination in Molecular Sciences and Nanotechnology. Successful completion is a pre-requisite for admission to candidacy. (Pass/Fail)

MUSIC APPLIED, CLASSES & RECITALS (MUAP)

100: General Recital. 1-0-0. A weekly, live performance laboratory for all music majors and minors taken concurrently with private lessons. Includes evening recital and concert attendance as required by the respective private lesson studio.

102: Class Voice. 1-1-1. Group instruction in the techniques of the singing voice.

111: Class Piano I - Major. 3-0-1. Preq., Permission of instructor. Introduction to the piano for the music major. Students work on reading two clefs, basic piano technique, sightreading, and repertory.

112: Class Piano II - Major. 3-0-1. Preq., MUAP 111 or permission of instructor. Continuation of MUAP 111, with more fundamental playing skills. Students work on two octave scales, harmonization, sightreading, and repertory.

113: Class Piano III - Major. 3-0-1. Preq., MUAP 112 or permission of instructor. Continuation from MUAP 112. Students work on more advanced playing skills, improvisation, and score-reading.

232: French Diction. 1-1-1. Pronunciation of French art song (melodie).

233: Italian Diction. 1-1-1. Pronunciation of Italian art song.

234: German Diction. 1-1-1. Pronunciation of German art song (Lieder).

398: Composition Recital. 1-0-0. Preq., Recital Committee approval. For Bachelor of Arts in Music, Composition concentration degree candidates will compose, prepare and perform a degree recital of not less than 25 minutes of music.

399: Half Recital. 1-0-0. Preq., Recital Committee approval. For all music majors, preparation and performance of a degree recital of not less than 25 minutes of music.

499: Full Recital. 1-0-0. Preq., Recital Committee approval. For Bachelor of Arts in Music, Performance concentration degree candidates, preparation and performance of a degree recital of not less than 50 minutes of music.

MUSIC APPLIED, PRIVATE LESSONS (MUPV)

Music Applied courses refer to private lessons taken in the appropriate studio in an area declared by the student. In order to be eligible to register for 400-level courses a student must pass an upper-division jury. This is usually done in the Spring of the Sophomore year. This rule applies only to music majors. Non-music majors may enroll at the 100 level according to the limitation of the applied instructor's schedule. All students must have the approval of the applied music instructor before registering for private lessons.

Minor Level

These courses are designed for students electing to minor in music, majors studying a secondary instrument, and non-music majors. Students register in the specific area or instrument as designated by the course number. Students minoring in music must also register for MUAP 100: General Recital concurrently with private study. Course content changes with each repetition. Music minors must complete 4 credit hours of MUPV minor level lessons, accruing 3 credit hours per year of enrollment.

111: Applied Piano - Minor. 1-0-1.
121: Applied Organ - Minor. 1-0-1.
131: Applied Voice - Minor. 1-0-1.
151: Applied Violin - Minor. 1-0-1.
152: Applied Viola - Minor. 1-0-1.
153: Applied Cello - Minor. 1-0-1.
154: Applied Bass - Minor. 1-0-1.
155: Applied Guitar - Minor. 1-0-1.
161: Applied Flute - Minor. 1-0-1.
162: Applied Oboe - Minor. 1-0-1.
163: Applied Bassoon - Minor. 1-0-1.
164: Applied Clarinet - Minor. 1-0-1.
165: Applied Saxophone - Minor. 1-0-1.
171: Applied Trumpet - Minor. 1-0-1.
172: Applied French Horn - Minor. 1-0-1.
173: Applied Trombone - Minor. 1-0-1.
174: Applied Euphonium - Minor. 1-0-1.
175: Applied Tuba - Minor. 1-0-1.
181: Applied Percussion - Minor. 1-0-1.
191: Applied Composition – Minor. 3-0-1.

Lower Division

These courses are designed for the music major studying privately at the lower division level whose declared major is in the specific area designated by the course title. Course content changes with each repetition. Music majors must complete six separate quarters of enrollment at the lower division level on the same instrument earning a grade of "C" or better for each quarter. The student must earn 6 credit hours of MUPV lower division applied study, accruing 3 credit hours per year of enrollment. Students who do not passs the upper division exam must audit lower level applied study while preparing to retake the upper division exam.

211: Applied Piano - Major. 1-2 semester hours.
221: Applied Organ - Major. 1-2 semester hours.
231: Applied Voice - Major. 1-2 semester hours.
251: Applied Violin - Major. 1-2 semester hours.
252: Applied Viola - Major. 1-2 semester hours.
253: Applied Cello - Major. 1-2 semester hours.
254: Applied Bass - Major. 1-2 semester hours.
255: Applied Guitar - Major. 1-2 semester hours.
261: Applied Flute - Major. 1-2 semester hours.
262: Applied Oboe - Major. 1-2 semester hours.
263: Applied Bassoon - Major. 1-2 semester hours.
264: Applied Clarinet - Major. 1-2 semester hours.
265: Applied Saxophone - Major. 1-2 semester hours.
271: Applied Trumpet - Major. 1-2 semester hours.
272: Applied French Horn - Major. 1-2 semester hours.
273: Applied Trombone - Major. 1-2 semester hours.
274: Applied Euphonium - Major. 1-2 semester hours.
275: Applied Tuba - Major. 1-2 semester hours.
281: Applied Percussion - Major. 1-2 semester hours.
291: Applied Composition. 1 semester hour.

Upper Division

These courses are designed for the music major studying privately at the upper division level whose declared major is in the specific area designated by the course title. Students must have passed the upper division exam to be eligible. Course content changes with each repetition. Music majors in the liberal arts and performance concentrations must complete six separate quarters of enrollment at the upper division level accruing 3 credit hours per year of enrollment. Students in the education concentrations must complete three separate quarters of enrollment at the upper division level accruing 3 credit hours per year of enrollment.

411: Applied Piano - Major. 1-2 semester hours.
421: Applied Organ - Major. 1-2 semester hours.
431: Applied Voice - Major. 1-2 semester hours.
451: Applied Violin - Major. 1-2 semester hours.
452: Applied Viola - Major. 1-2 semester hours.
453: Applied Cello - Major. 1-2 semester hours.
454: Applied Bass - Major. 1-2 semester hours.
455: Applied Guitar - Major. 1-2 semester hours.
461: Applied Flute - Major. 1-2 semester hours.
462: Applied Oboe - Major. 1-2 semester hours.
463: Applied Bassoon - Major. 1-2 semester hours.
464: Applied Clarinet - Major. 1-2 semester hours.
465: Applied Saxophone - Major. 1-2 semester hours.
471: Applied Trumpet - Major. 1-2 semester hours.
472: Applied French Horn - Major. 1-2 semester hours.
473: Applied Trombone - Major. 1-2 semester hours.
474: Applied Euphonium - Major. 1-2 semester hours.
475: Applied Tuba - Major. 1-2 semester hours.
481: Applied Percussion - Major. 1-2 semester hours.
491: Applied Composition. 1 semester hour.
493: Applied Advanced Choral Conducting – Major. 1 semester hour.
494: Applied Advanced Instrumental Conducting – Major. 1 semester hour.

MUSIC DIRECTED STUDIES (MUDS)

450: Directed Studies. 1-4 semester hours (6). Preq., consent of advisor. Selected study in an identified area in Music. Credit depends on the nature of problem and work accomplished. May be repeated for credit.

550: Directed Studies. 1-4 semester hours (6). Preq., consent of advisor. Selected study in an identified area in Music. Credit depends on the nature of the problem and work accomplished. May be repeated for credit.

MUSIC ENSEMBLE (MUEN)

Course content changes with each repetition. Music majors are required to enroll in a large ensemble each quarter of full-time study.

200/400: Chamber Ensemble. 1-0-1 (6). Instruction and performance in small instrumental or vocal ensembles.

231/431: University Concert Choir. 4-0-1 (12). Preq., audition. Major Ensemble. Instruction and performance in large vocal ensemble.

232/432: Chamber Singers. 2-0-1 (12). Preq., audition. Major Ensemble. Instruction and performance in advanced vocal ensemble.

234/434: Opera Workshop. 4-0-1 (3). A function study in opera performance including vocal, dramatic, and technical aspects of opera production.

251/451: Chamber Orchestra. 4-0-1 (6). Preq., audition. Instruction and performance in string ensemble.

260/460: Musical Stage Orchestra. 3-1-2 (8). Orchestral experience with literature and techniques of music theatre.

261/461: Musical Stage Production. 3-1-2 (8). Practical study of theories, practices and techniques of musical stage production.

271/471: University Marching Band. 4-0-1 (4). Preq., audition required. Major Ensemble. Instruction and performance in the college marching band. Includes performance in designated football games, bowl games, pep rallies and other presentations as directed.

272/472: Fall Wind Ensemble. 1-0-1 (2). Preq., audition. Open to any major. Instruction and performance in concert band. Includes reading and study of selected works from the major standard band repertoire for participating music majors.

273/473: Symphonic Wind Ensemble. 4-0-1 (4). Preq., audition. Major ensemble. Instruction and performance in advanced band ensemble.

274/474: University Concert Band. 4-0-1 (4). Preq., audition. Major ensemble. Instruction and performance in band ensemble.

275/475: University Jazz Ensemble. 3-0-1 (6). Preq., audition. Performance and instruction in stage band ensemble covering a variety of jazz styles and genres.

276/476: Low Brass Ensemble. 1-0-1 (6). Preq., consent of instructor. Performance and instruction in low brass ensembles and literature.

281/481: Percussion Ensemble. 2-0-1 (6). Preq., audition. Performance and instruction in the various combinations of percussion ensemble.

MUSIC GENERAL (MUGN)

112: Beginning Piano. 2-0-2 (6). Preq., consent of instructor. Instruction in beginning piano techniques for the non-music major.

152: Beginning Guitar. 2-0-2 (6). Preq., consent of instructor. Instruction in beginning guitar techniques for the non-music major.

290: Music Appreciation. 0-3-3. Satisfies General Education Requirement for Fine Arts Appreciation. For non-music majors. Attempts to answer the question "What is Music?" by acquainting students with knowledge and appreciation of music from several cultures and eras. Master Course Articulation Matrix* [LCCN: CMUS 1013] or [LCCN: CART 1013]

400: Beginning Your Music Career. 0-3-3. Preq., consent of instructor. Course designed to prepare students for a career in music.

MUSIC HISTORY AND LITERATURE (MUHS)

301: Music History I. 0-2-2. Preq., MUTH 103. A survey of the specific periods of music and its literature, from antiquity through the Renaissance.

302: Music History II. 0-2-2. Preq., MUTH 103. Continuation from MUHS 301, from the Baroque and into the Classical era.

303: Music History III. 0-2-2. Preq., MUTH 103. Continuation from MUHS 302, from the Romantic to the present era.

306: Introduction to Non-Western Music. 0-2-2. Preq., MUTH 103 or permission of instructor. An introduction to the music and musical life of the world's peoples by sampling and by synthesis.

307: Introduction to Jazz History. 0-2-2. Preq., MUTH 103 or permission of instructor. Cultivate in the music major an understanding of jazz music through a comprehensive study of major artists and styles from 1900 to the present.

410: Piano Literature. 0-3-3. A survey of piano literature from the Classic Period to the present including literature composed for earlier keyboard instruments.

430: Vocal Literature. 0-3-3. A survey of vocal literature covering a wide diversity of composers, styles, and historical periods through discussion and analysis of representative works including assignments in listening, performance, and reading.

431: Choral Literature. 0-2-2. A survey of choral literature covering a diversity of composers, styles, and historical periods through discussion and analysis of representative works.

432: Survey of Opera. 0-3-3. Preq., permission of instructor. Designed to cultivate in students an understanding and enjoyment of opera by surveying selected, significant operatic works through viewing and analysis.

433: Survey of American Music Theatre. 0-3-3. Preq., MUGN 290 or SPTH 290. Designed to increase the understanding and appreciation of the American Music Theatre genre through the study of musical theatre works, composers, lyricists, directors, and performers.

434: Wind Ensemble Literature. 0-2-2. A survey of wind ensemble literature covering a diversity of composers, styles, and historical periods through discussion and analysis of representative works.

MUSIC PEDAGOGY (MUPD)

300: Beginning Conducting. 1-1-1. Preq., MUTH 103. Elementary methods, principles and practice of conducting.

301: Choral Conducting. 1-2-2. Preq., MUTH 201 and MUPD 300. Principles of interpretation and score reading with emphasis on choral conducting. Includes laboratory experience with the choral ensembles.

302: Instrumental Conducting. 1-2-2. Preq., MUTH 201 and MUPD 300. Principles of interpretation and score reading with emphasis on instrumental conducting. Includes laboratory experience with the instrumental ensembles.

304: Marching Band Drill Design. 3-0-1. This course provides practical application in the elements of marching band show planning, design, and teaching.

311: Piano for Vocal Education. 2-0-2. Preq., students must have passed all parts of the piano proficiency exam and have the consent of the instructor. Experiences in improvising, transposing and performing vocal accompaniments at the piano. These skills are required for vocal music education majors.

331: Vocal Methods. 1-1-1. Group instruction in the singing voice including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

351: String Methods. 2-0-1. Group instruction in strings including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

352: Guitar Methods. 2-0-1. Group instruction in fretted instruments including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

361: Flute Methods. 2-0-1. Group instruction in flute including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

362: Single Reed Methods. 2-0-1. Group instruction in single reed instruments including methods and materials of instruction for the music educator. Includes laboratory experiences and observations at the elementary and secondary levels.

363: Double Reed Methods. 2-0-1. Group instruction in double reed instruments including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

371: High Brass Methods. 2-0-1. Group instruction in high brass instruments including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

372: Low Brass Methods. 2-0-1. Group instruction in low brass instruments including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

381: Percussion Methods. 2-0-1. Group instruction in percussion instruments including methods and materials of instruction for the music educator. Includes laboratory experiences and observation at the elementary and secondary levels.

410: Piano Pedagogy I. 3-1-2. Methods and materials of teaching piano in private studio and/or in the school.

411: Piano Pedagogy II. 3-1-2. Preq., MUPD 410. Continuation of MUPD 410. Practice teaching of beginning students is integral to this course.

430: Vocal Pedagogy I. 3-1-2. Methods and materials of teaching voice in private studio and/or in the school.

431: Vocal Pedagogy II. 3-1-2. Practice teaching of beginning students is integral to this course.

455: Guitar Pedagogy I. 3-1-2. Methods and materials of teaching guitar in private studio and/or in school..

456: Guitar Pedagogy II. 3-1-2. Continuation of MUPD 455. Practice teaching of beginning students is integral to this course.

461: Flute Pedagogy I. 3-1-2. Methods and materials of teaching flute in private studio and/or in school..

462: Flute Pedagogy II. 3-1-2. Continuation of MUPD 461. Practice teaching of beginning students is integral to this course.

464: Elementary Music Methods. 1-3-3. An overview of the methodologies of Orff, Kodaly, and Dalcroze. Learning to plan, execute and evaluate music programs in the elementary school.

465: Secondary Vocal Methods. 1-3-3. Preq., Admission to a teaching program. Materials and methods for the teacher and supervisor of vocal music (program building, contests, festivals, requisitions, grading materials, scheduling and rehearsing).

466: Secondary Instrumental Methods. 1-3-3. Preq., Admission to a teaching program. Materials and methods for the teacher and supervisor of instrumental music (program building, contests, festivals, requisitions, grading materials, scheduling and rehearsing).

467: Clarinet Pedagogy I. 3-1-2. Methods and materials of teaching clarinet in private studio and/or in school..

468: Clarinet Pedagogy II. 3-1-2. Practice teaching of beginning students is integral to this course.

471: Trumpet Pedagogy I. 3-1-2. Methods and materials of teaching trumpet in private studio and/or in school..

472: Trumpet Pedagogy II. 3-1-2. Practice teaching of beginning students is integral to this course.

475: Tuba Pedagogy I. 3-1-2. Methods and materials of teaching tuba in private studio and/or in school.

476: Tuba Pedagogy II. 3-1-2. Practice teaching of beginning students is integral to this course.

MUSIC TECHNOLOGY (MUTC)

301: Computer Science in Music. 2-2-3. Study of general computer applications and music related applications including notation, graphics, sound generation, sequencing, audio manipulation, and other related uses.

302: Multimedia Production I. 6-3-3. Preq., Consent of Instructor. Introduction to the fundamentals of multimedia production with a focus on digital audio and video capturing and editing.

303: Multimedia Production II. 6-3-3. Preq., Consent of Insturctor. Continuation of MUTC 302. Applied digital multimedia production through team based projects linked to the students' primary area of study.

MUSIC THEORY (MUTH)

100: Rudiments of Music Theory. 2-3-3. Instruction in the fundamentals of music theory including reading, notation, aural skills, and keyboard application.

101: Music Theory I. 2-2-2. Beginning study of fundamentals of music covering the areas of notation, ear-training, sight singing, and functional keyboard.

102: Music Theory II. 2-2-2. Preq., MUTH 101. Continuation of MUTH 101, increasing emphasis on common-practice harmonic vocabulary.

103: Music Theory III. 2-2-2. Preq., MUTH 102. Continuation of MUTH 102.

201: Music Theory IV. 2-2-2. Preq., MUTH 103. Continuation of MUTH103 with emphasis on the organization and interaction of melodic, harmonic and rhythmic concepts and music forms. Aural training and functional keyboard is intensified in proportion to the depth of course content.

202: Music Theory V. 2-2-2. Preq., MUTH 201. Continuation of MUTH 201.

203: Music Theory VI. 2-2-2. Preq., MUTH 202. Continuation of MUTH 202.

301: Music Composition. 0-3-3. Preq., MUTH 203. A survey of the techniques of 20th century composition with projects consisting of the writing of short compositions illustrating these techniques.

302: Form and Analysis. 0-3-3. Preq., MUTH 203. A study of specific examples of the major forms of composition to show the relative importance of detail to the overall comprehension of a composition.

303: Advanced Harmony. 0-3-3. Preq., MUTH 203. Course will cover all aspects of harmonic development in the common practice era.

304: Special Topics in Music Theory. 0-3-3 (6). Preq., MUTH 203. Course may be repeated, but with a different topic. This course is designed to explore specific, advanced topics in music theory.

330: Choral Arranging. 0-2-2. Preq., MUTH 203. A study of writing for the individual voices and the combinations of voices in choral ensembles.

370: Instrumental Arranging. 0-2-2. Preq., MUTH 203. A study of writing for the individual instruments of the band and orchestra, the combinations of instruments in the various sections, and the combination of all the sections.

401: 18th Century Counterpoint. 0-3-3. Preq., MUTH 203. A study of contrapuntal practice of the 18th and 19th centuries with emphasis on the understanding of counterpoint within a harmonic context.

402: Orchestration. 0-3-3. Preq., MUTH 203. A study of the individual orchestral instruments, their ranges and how they are combined together to create chamber ensembles and large ensembles.

403: 16th Century Counterpoint. 0-3-3. Preq., MUTH 203. A study of contrapuntal practice of the 16th century with emphasis on the understanding of counterpoint within the Renaissance context.

404: Electronic Composition. 0-3-3. Preq., MUTH 203. A survey of the history of electronic music and the application of digital tools for the creation of original compositions.

NANOSYSTEMS ENGINEERING (NSE)

201: Fundamentals of Nanosystems Engineering. 3-1-2. Preq., CHEM 102 and PHYS 201. Fundamentals of nanotechnology and its application to engineering systems, emphasizing basic principles, materials, measurement tools, fabrication techniques, and applications.

302: Nanomanufacturing. 3-1-2. Preq., CHEM 251, 253; and NSE 201. Applied process design for nanomanufacturing incorporating economic and safety hazards analyses that includes a project based laboratory experience with fabrication and metrology instruments.

406: Nanosystems Engineering Senior Design I. 3-0-1. Preq., NSE 302. Open-ended, team-based engineering design/research project that draws on the students' entire academic experience utilizing the engineering design process.

407: Nanosystems Engineering Senior Design II. 3-0-1. Preq., NSE 406. A continuation of NSE 406 with emphasis on detailed system design.

408: Nanosystems Engineering Senior Design III. 3-0-1. Preq., NSE 407. A continuation of NSE 407 with emphasis on prototype construction and evaluation.

410: Nanosystems and Devices. 0-3-3. Preq., NSE 490, MSE 404, MSE 406. Overview of nanosystems, nanodevices, and nanosensors including synthesis, modeling, analysis, design and optimization and their application in areas such as nanofluidics, magnetics, electronics, and biotechnology.

450: Special Problems. 1-4 credit hours. Preq., Senior standing and Permission of Instructor. Topics selected will vary from term to term for the purpose of covering selected topics of current importance or special interest.

490: Nanosystems Modeling. 0-3-3. Preq., CHEM 251. Application of molecular simulation to nanosystems engineering problems. Molecular modeling principles and techniques such as quantum mechanics, molecular dynamics, and Monte Carlo methods.

NURSING (NURS)

100: Transition to Associate Degree Nursing. 0-2-2. For students applying to the LPN to RN articulation program. Emphasizes transition to the university environment, roles, and competencies of the associate degree nurse. (Pass/Fail)

109: Introduction to Nursing. 0-2-2. An introduction to the health care system and professional nursing. Basic human needs, the elderly client, and concepts related to death and dying are introduced.

110: Introduction to Application of the Nursing Process. 12-0-3. Coreq., NURS 109, and credit or registration in BISC225 and 226. Acquaints student with basic nursing principles and techniques of safe nursing care to meet basic human needs. Emphasis on interpersonal skills, communication, interviewing and observation.

112: Adult Health Maintenance I. 8-3-5. Preq., NURS 109 and 110 and BISC 225 and 226 and credit or registration in BISC227. Study, identification and application of nursing knowledge and skills related to adult health needs. Emphasis on patient-centered care utilizing the nursing process.

113: Introduction to Associate Degree Nursing. 0-0-10. Preq., NURS 100. Emphasizes the nursing process and basic human needs with introduction to associate degree nursing roles. Principles are applied with validation in the clinical setting.

114: Adult Health Maintenance II. 8-3-5. Preq., NURS 112 or 113, BISC 225, 226, and 227, MATH (GER); Coreq., BISC 214. Continuation of the study, identification and application of nursing knowledge and skills needed related to adult health needs. Emphasis on patient-centered care utilizing the nursing process.

116: Adult Neuro/Psycho-Social Health Maintenance. 8-3-5. Preq., NURS 114. Utilizes nursing knowledge/skills in provision of health care. Emphasis on nursing care of clients experiencing threats to needs as a result of neuro-psycho-social dysfunction.

210: Maternal/Newborn Health Maintenance. 8-3-5. Preq., NURS 116. Study/application of principles and concepts of family-centered maternal/newborn care. Emphasis on meeting specific needs of clients during the childbearing cycle and newborn period.

212: Child Health Maintenance. 8-3-5. Preq., NURS 116 and PSYC 208. Study/application of nursing knowledge/skills related to children's and adolescent's health needs. Includes growth and development, family, and prevention of and intervention in illness.

214: Nursing Seminar. 0-1-1. Preq., Credit in all previous nursing courses. Study of current nursing trends in light of evolving patterns and practices. Emphasis on professional opportunities, obligations, and legal aspects of nursing practice.

216: Nursing Practicum. 24-4-7. Coreq., NURS 214. Preq., Credit in all other nursing courses. Integration of knowledge and skills acquired in previous nursing courses in caring for clients with complex and/or multiple threats to basic needs.

280: Selected Topics. 1-3 hour(s) credit (6). Preq., Approval by Nursing Division Director. Independent study course designed for students to become involved with creative learning opportunities related to nursing research, theory and practice.

ORGANIZATIONAL LEADERSHIP (ORGL)

300: Introduction to Organizational Leadership Principles and Concepts. 0-3-3. An overview of the principles, theories, models, and styles of organizational leadership. Analysis and assessment of personal leadership style, strengths and weaknesses.

311: Professional Writing. 0-3-3. A survey of the characteristics of professionalism in the creation of professional documents.

314: Diversity and Intercultural Understanding. 0-3-3. Overview of importance of diversity and cross-cultural communication in today's globalized world drawing from cross-cultural communication, political science and comparative politics, economics, and sociology.

317: Concepts and Technologies of Organizational Communication. 0-3-3. This course will explore the role that human communication, both oral and written, plays in structuring, maintaining, and changing organizational behavior.

321: Principles of Team Leadership in Project Management. 0-3-3. This course is designed to provide students with the fundamental concepts and principles of team leadership in project management.

324: Quantitative and Qualitative Analysis. 0-3-3. Introduction to methodologies for analysis of organizational metrics and quantitative and qualitative applications through "real world" modeling and interpretation.

327: Laws and Ethics Applied to Organizations. 0-3-3. The course offers students an understanding of core legal principles and applications of relevant employment and organizational law and ethics.

334: Critical Thinking and Analysis. 0-3-3. Introduction to effective reasoning strategies and to improve cognitive skills that are essential for understanding organizational data and effectively using data in making decisions.

335: Issues in Organizational Effectiveness. 0-3-3. A survey of the impact of internal and external constraints on decision making and organizational effectiveness.

337: Strategic Planning Within Organizational Cultures. 0-3-3. The course blends the tenets of strategic planning to construct planning proposals that enhance strategic planning outcomes.

PHILOSOPHY (PHIL)

201: Introduction to Philosophy. 0-3-3. Preq., junior standing or permission of the instructor. Philosophical vocabulary; types and problems of philosophy; major philosophical positions. Master Course Articulation Matrix* [LCCN: CPHL 1013]

205: Ethics. 0-3-3. Preq., PHIL 201 or permission of the instructor. A study of the writings of the major moral philosophers, beginning with the Greeks and continuing to the present.

PHYSICS (PHYS)

102: Introductory Physics. 2-1-1. An introductory survey of physics, use of library resources, and basic computation.

103: Introductory Physics. 2-1-1. A continuation of PHYS 102.

104: Introductory Physics. 2-1-1. A continuation of PHYS 103.

201: Physics for Engineering and Science I. 0-3-3. Preq., MATH 241. Thorough treatment of fundamental principles and their application, with emphasis on mechanics. Master Course Articulation Matrix* [LCCN: CPHY 2133]

202: Physics for Engineering and Science II. 0-3-3. Preq., PHYS 201 and MATH 242. A continuation of PHYS 201, with emphasis on electromagnetic phenomena and optics. Master Course Articulation Matrix* [LCCN: CPHY 2143]

205: Conceptual Physics I. 0-3-3. Qualitative discussion of physical principles and concepts, intended for non-technical majors and those interested in the cultural aspects of the subject. Master Course Articulation Matrix* [LCCN: CPHY 1013] or [LCCN: CPHY 1023]

206: Conceptual Physics II. 0-3-3. A continuation of PHYS 205. Master Course Articulation Matrix* [LCCN: CPHY 1033]

209: General Physics I. 0-3-3. Preq., MATH 112. A study of the fundamental principles of physics and their applications to mechanics, thermodynamics, and waves. An algebra and trigonometry based problem solving course. Master Course Articulation Matrix* [LCCN: CPHY 2113] or [LCCN: CPHY 2114]

210: General Physics II. 0-3-3. Preq., PHYS 209. A continuation of PHYS 209, with emphasis on problems in electricity and magnetism, optics, and modern physics. Master Course Articulation Matrix* [LCCN: CPHY 2123] or [LCCN: CPHY 2124]

220: Astronomy - The Solar System. 0-3-3. An introduction to astronomy, covering the history of astronomy and the solar system. Master Course Articulation Matrix* [LCCN: CAST 1103]

221: Introduction to Astrophysics. 0-3-3. Introduction to astronomy, with emphasis on physical principles. Application of mechanics to orbits of planets and multiple stars. Atomic theory applied to stellar spectra. Nuclear reactions in stars.

230: Astronomy - The Stars and Galaxies. 0-3-3. An introduction to Astronomy, covering the stars, galaxies, and the universe. Master Course Articulation Matrix* [LCCN: CAST 1113]

261: General Physics Laboratory. 4 1/2-0-1. Preq., MATH 112 or 241. Laboratory investigations of basic physical principles. Master Course Articulation Matrix* [LCCN: CPHY 2111] or [LCCN: CPHY 2131] or [LCCN: CPHY 2114]

262: General Physics Laboratory. 4 1/2-0-1. Preq., PHYS 261. A continuation of PHYS 261. Master Course Articulation Matrix* [LCCN: CPHY 2121] or [LCCN: CPHY 2141] or [LCCN: CPHY 2124]

303: Geometrical Optics. 0-3-3. Preq., PHYS 202. The study of thick lenses, lens system layouts, aberrations, photometric theory applied to optical systems, optical instruments and matrix optics.

304: Physical Optics. 0-3-3. Preq., PHYS 202. A thorough position of the wave theory of light and an introduction to the quantum theory.

307: Thermodynamics. 0-3-3. Preq., PHYS 202. Classical thermodynamics and introductory classical and quantum statistical mechanics.

320: Optics Laboratory I. 4 1/2-0-1. Experiments in optics to demonstrate optical phenomena.

350: Introduction to Lasers. 0-3-3. Preq., six hours of physics. Introduction to modern laser technology. A semi-quantitative approach presents all known types of lasers. Applications such as measurements, instrumentation, communications, biological, medical, and health hazards are concluding topics.

406: Electricity and Magnetism. 0-3-3. Preq., MATH 245, PHYS 202. A study of the fundamental theories of electricity and magnetism. An application of basic principles is stressed.

407: Electricity and Magnetism. 0-3-3. Preq., PHYS 406. A continuation of PHYS 406.

408: Electricity and Magnetism Laboratory. 4 1/2-0-1. Experiments in circuitry and in classical electricity and magnetism.

409: Electricity and Magnetism Laboratory. 4 1/2-0-1. Preq., PHYS 408. A continuation of PHYS 408.

410: Mathematical Methods in Physics. 0-3-3. Preq., MATH 245. Introduction to advanced mathematical methods used in physics, including vectors and tensors, complex functions and integration, boundary value problems, Fourier series, and Fourier transforms. **(G)**

412: Introduction to Solid State Physics. 0-3-3. Preq., PHYS 202. Introduction to the fundamentals of material structures at the atomic, nano- and microscale emphasizing properties.

416: Modern Physics. 0-3-3. Preq., PHYS 202. An advanced course in general physics stressing modern developments; including special relativity, the Bohr model, Heisenberg's uncertainty principle, and an introduction to Schrodenger's equation.

417: Modern Physics. 0-3-3. Preq., PHYS 416. A continuation of PHYS 416 with overviews of atomic physics, statistical physics, solid state physics, and nuclear and particle physics.

418: Modern Physics Laboratory. 4 1/2-0-1. Laboratory exercises involving the electron, the photon, and the nucleus.

419: Modern Physics Laboratory. 4 1/2-0-1. Preq., PHYS 418. A continuation of PHYS 418 with emphasis on atomic, solid state, nuclear and particle physics.

422: Physical Mechanics. 0-3-3. Preq., PHYS 202, MATH 245. Statics, particle dynamics, dynamics of a rigid body, kinetic theory, elasticity, wave motion, and behavior of fluids. Fundamental importance of mechanical principles in all fields of physics emphasized. **(G)**

423: Physical Mechanics. 0-3-3. Preq., PHYS 422. A continuation of PHYS 422. **(G)**

424: Quantum Mechanics. 0-3-3. Preq., PHYS 423, PHYS 416, and MATH 245. An extension of mechanics into the microscopic world. The statistical nature of physical law is developed to augment the classical Newtonian picture of the macroscopic world.

425: Introduction to Nuclear and Particle Physics. 0-3-3. Nuclear models, passage of radiation through matter, particle detection, the Standard Model of particle physics. **(G)**

430: Introduction to Medical Physics. 0-3-3. Preq., PHYS 209-210 or 201-202. A basic course in Physics of radiology, designed for students interested in therapeutical and diagnostic uses of ionizing radiation. **(G)**

435: Undergraduate Physics Research. 1-3 hours credit (6). Preq., consent of instructor. Introduction to methods of research.

445: Nonlinear Dynamics and Chaos. 0-3-3. Preq., MATH 245. Introduction to phase space variables, computational solutions to linear and nonlinear differential systems, bifurcations, phase portraits, limit cycles, chaotic systems, maps, and fractals. This is a cross–listing of MATH 425. Credit will not be given for PHYS 445 if credit is given for MATH 425. **(G)**

462: Modern Physics for Teachers. 0-3-3. Preq., 8 hours of Physics or permission of instructor. A survey of modern physics as used by the high school teacher of physics. Emphasis is placed on experimental techniques.

463: Modern Physics for Teachers. 0-3-3. Preq., 8 hours of Physics or permission of instructor. Hands-on experience for teachers developing a physics science program that emphasizes the observational side of Physics.

465: Physics of Sound. 0-3-3. Preq., PHYS 205. The physical and psychophysical processes associated with sound are studied so that the basic mechanisms of hearing, speech and music can be better understood.

470: Seminar. 1-6 hours credit. Preq., Permission of instructor. An opportunity is given for students to present current topics and actively participate in discussions concerning new developments in physics.

480: Modern Astrophysics. 0-3-3. Preq., PHYS 417. Astrophysics is discussed in light of the tremendous amount of data accumulated from areas such as high energy experimental physics and elementary particle theory.

503: Topics in Physics. 1-3 hours credit (6). Independent study. Topics arranged to meet the needs of the student.

510: Mathematical Methods in Physics. 0-3-3. An advanced treatment of the approaches used to formulate solutions to physical problems, such as boundary value problems, variational methods and approximate solutions. Credit will not be given for PHYS 510 if credit is given is given for MATH 520.

511: Electromagnetic Theory. 0-3-3. An advanced treatment of the theory of electricity and magnetism.

512: Solid State Physics. 0-3-3. An advanced treatment of the structure and the thermal, electrical and magnetic properties of solid materials.

515: Applied Particle and Nuclear Physics. 0-3-3. Nuclear physics basics, detection of radiation, interaction of radiation with matter, radioactive dating, Mossbauer effect, nucleatr fission and fusion, nuclear and particle imaging techniques.

521: Theoretical Mechanics. 0-3-3. A presentation of advanced classical mechanics oriented towards modern theories of physics.

522: Quantum Mechanics. 0-3-3. An outline of the principles of wave mechanics and quantum mechanics, followed by their application to problems in atomic and nuclear theory.

523: Classical Theory of Fields. 0-3-3. Preq., PHYS 511, 522. A concentrated study of the dynamics of relativistic particles and electromagnetic fields utilizing the Langrangian and Hamiltonian formulations for fields.

524: Quantum Theory of Fields. 0-3-3. Preq., PHYS 523. An advanced course on the quantum structure of field theories. Functional techniques are used to discuss the quantum theory of electroweak and strong interactions.

531: Theories of Physics. 0-3-3. Selected topics. Contemporary theories dealing with recent trends in physics.

532: Theories of Physics. 0-3-3. A continuation of PHYS 531.

533: Statistical Mechanics. 0-3-3. Preq., PHYS 521. A study of the statistical aspects of modern physical theory. Considers the classical and quantum aspects of many-particle systems.

540: Computational Methods in Physics Modeling and Simulation I. 0-3-3. Computational methods for implementing modeling and simulation of physical systems.

541: Computational Methods in Physics Modeling and Simulation II. 0-3-3. Preq., PHYS 540. Computational methods for implementing modeling and simulation of physical systems.

542: Advanced Solid State Physics. 0-3-3. Preq., PHYS 512. An advanced treatment of topics in the phsyics of solid materials, including plasmons, polaritons, polarons; optical processes and excitons; dielectrics and ferroelectrics; noncrystalline solids, point defects; surface physics, dislocations, and alloys.

545: Nonlinear Dynamics. 0-3-3. Mathematical and computational description of nonlinear systems, phase space variables, bifurcations, phase portraits, limit cycles, Lyapunov stability, chaotic systems, iterated maps, and fractals. Credidt will not be given for PHYS 545 if credit is given for MATH 525.

549: Physics Research & Reporting. 0-3-3 (6). Preq., 12 semester hours of graduate work. Experimental or computational study of a problem in physics. A survey of the relevant literature and a formal written report are required. This course fulfills the research and reporting requirement for a master's degree non-thesis option. (Pass/Fail)

551: Research and Thesis in Physics. (Pass/Fail). Preq., 12 semester hours of graduate work. Registration in any quarter is for 3 semester hours or multiples thereof. Maximum credit applicable towards the degree is 6 semester hours.

557: Advanced Topics in Physics. 0-3-3 (9). The topic or topics will be selected by the instructor from the various sub-disciplines of physics.

657: Selected Topics in Physics. 0-3-3 (9). The topic or topics will be selected by the instructor from a specialized area of physics research.

PLANT SCIENCE (PLSC)

101: Introduction to Plant Science. 0-3-3. Basic concepts of production and management of agronomic and horticultural crops.

211: Forage Crops and Pasture Management. 3-2-3. A study of the growth adaptation and culture of forage crops including types of plants, methods of establishment and improvement, and use of forages.

220: Greenhouse Management. 3-2-3. Principles and practices involved in greenhouse operation, including production of flowering and foliage crops.

225: Special Problems in Plant Science. 1-3 hours credit. Preq., consent of instructor. May be repeated for credit. Assignments in landscape design, greenhouse or field production projects or other horticultural practica.

284: Landscape Plants. 3-2-3. Identification of common landscape plants, including culture, propagation, and use.

301: Landscape Design & Contracting. 3-2-3. Elements and principles of design for homes and small properties; contracting operations including estimates and bidding, plant installation, and maintenance.

310: Soil Science. 0-3-3. Preq., CHEM 100 or 120, MATH 100 or 101. A general study of soil science, emphasizing the relation of soil properties and processes to plant growth. Cannot be taken for credit if student has credit for ENSC 310.

311: Soil Science Laboratory. 3-0-1. Coreq. or Preq., PLSC 310 or ENSC 310. Laboratory exercises emphasizing fundamental soil properties and routine analytical techniques. Cannot be taken for credit if student has credit for ENSC 311.

312:Turf Management. 3-2-3. Establishment, maintenance, and management of turf grasses for homes, athletic fields, golf courses, playgrounds, parks, highways, airfields, and other uses.

400: Special Problems. 1-3 hours credit. May be repeated for credit. Permission of instructor required. Assignments in floral or landscape design, greenhouse or field production projects or other horticulture practica.

422: Pest Management. 0-3-3. Basic concepts of integrated pest management; pesticide laws and regulations, labeling requirements, formulations, application procedures, environmental behavior, and safety. **(G)**

423: Agricultural Pests. 3-2-3. Identification and control of common weed, insect, nematode, and disease pests that affect landscapes and horticultural crops in the southern United States. **(G)**

440: Nursery Management. 3-2-3. Production, handling and sales practices in the nursery, greenhouse and garden center. **(G)**

450: Management of Soil and Water Quality. 0-3-3. Preq., PLSC 310 or ENSC 310. Study of agricultural and environmental techniques that affect soil and water quality with emphasis on nutrient management, soil erosion, and best management practices. Cannot be taken for credit if student has credit for ENSC 450

POLITICAL SCIENCE (POLS)

201: National Government in the United States. 0-3-3. A study of the development of the national government with emphasis on problems connected with the federal system and separation of powers. Master Course Articulation Matrix* [LCCN: CPOL 2013]

220: Legislation in the United States: Federal and State. 0-3-3. Preq., POLS 201. A study of the legislative process and of the influences that determine the nature of the legislative product.

230: The American Presidency. 0-3-3. Preq., POLS 201. A study of the American Presidency including its origins, roles, functions, and problems.

302: Comparative Foreign Governments. 0-3-3. Preq., POLS 201 or consent of instructor. A study of the political systems and governments of the major European nation-states of the twentieth century. **(IER)**

303: State Government and Administration in the United States. 0-3-3. Preq., POLS 201. A study of the role of the state in the American Union including nation-state and interstate relations. Master Course Articulation Matrix*

310: Government and the Economy. 0-3-3. Preq., POLS 201. Political/economic issues (employment, inflation, poverty, energy, environment, health care, etc.) are studied according to competing theories of political economy.

322: Political Parties in the United States. 0-3-3. Preq., POLS 201. A study of American political parties, including historical origins, their broad role in the political system, and their current place in American politics.

325: History of European Political Theory. 0-3-3. Preq., POLS 201, and junior class standing, or consent of instructor. A study of Western political philosophy from its beginnings to the nineteenth century. **(IER)**

327: Modern Political Theory and Ideologies. 0-3-3. Preq., POLS 201. A study of nineteenth and twentieth century political theory with emphasis on the principal modern ideologies (Anarchism, Communism, Socialism, Fascism, Democracy). **(IER)**

340: Race, Class, and Gender in American Politics. 0-3-3. Preq., POLS 201. An examination of three crucial political variables (race, class, gender), including their theoretical and historical impact and their combined relevance in contemporary American politics.

345: Scope and Methods in Social Sciences. 0-3-3. Preq., POLS 201. An introduction to basic statistics, computer and data analysis, research design, and the application of the qualitative and quantitative methods to the social sciences.

350: International Relations. 0-3-3. Preq., POLS 201. An introductory study of political contacts between modern nation-states, the origin of nationalism and imperialism, and the causes and effects of power politics. **(IER)**

355: American Foreign Policy. 0-3-3. Preq., POLS 201. America's foreign policy doctrines and the factors involved in their formulation, including constitutional framework, presidential and congressional leadership, pressure groups, public opinion, and international environment. **(IER)**

420: Contemporary Problems in Government. 0-3-3. Preq., One of the following courses: POLS 201, or 303, and junior standing.

426: American Constitutional Law I. 0-3-3. Preq., POLS 201. Introduction to judicial institutions and processes as well as a case method study of the constitutional issues of judicial review, federalism, government economic regulation, and others.

427: American Constitutional Law II. 0-3-3. Preq., POLS 201. A continuation of the case method study of constitutional law, with emphasis on political and civil rights (speech, press, assembly, religion, race, criminal procedure, etc.).

460: Politics of Developing Nations. 0-3-3. Preq., POLS 201. An analysis of the relationship of politics to rapid economic and social change in developing nations and evaluation of policies intended to promote development. **(IER)**

465: Asian Politics. 0-3-3. Preq., POLS 201. A survey of interrelationships among Asian nations, their relationships with occidental powers, their international roles, and politics of the region as a whole. **(IER)**

PROFESSIONAL AVIATION (PR AV)

101: Private Pilot Ground I. 0-3-3. Coreq., PRAV 110 or Permission of Instructor. Prepares students knowledge to pass the solo written examination for an airplane. Includes instruction on pre flight, performance planning, airport operations, and aero-medical factors.

102: Private Pilot Ground II. 0-3-3. Preq., PRAV 101. Coreq., PRAV 111 or Permission of Instructor. Prepares students to pass the Private Pilot Written Examination. Explores FAR/AIMs, basic navigation (pilotage/dead reckoning/radio), aviation physiology, aviation safety, and emergency procedures.

110: Private Pilot Flight I. 4-0-1. Coreq., PRAV 101 or Permission of Instructor. (Special Fee). Prepares students flight skills to solo an airplane. Includes instruction on pre flight, performance planning, and airport operations. Solo flight has to take place to earn a grade of "C" or better. Includes approximately 10 to 20 flight hours in a Cessna 172.

111: Private Pilot Flight II. 4-0-1. Preq., PRAV 101; Coreq., PRAV 102 or Permission of Instructor. (Special Fee). Prepares students to pass the solo cross-country and final Private Pilot stage and Practical Tests. Covers FAR/AIMs, navigation, emergency procedures, and the Private Pilot PTS and TCO material. Passing the FAA Practical test is mandatory to earn a grade of "C" or better. Includes approximately 25 flight hours in a Cessna 172.

200: Aircraft Powerplant Systems. 0-3-3. Theory of Aircraft Powerplant Heat Engines and related systems. A study of the aircraft engine from a historical perspective.

223: Fixed Base Operations. 0-3-3. Detailed study of the functions and responsibilities of the typical Fixed Base Operator to include management principles, marketing, services provided, and financial management.

239: Aviation Weather. 0-3-3. Preq., PRAV 102. The study of the atmosphere for the purpose of maximizing aircraft performance while minimizing exposure to weather hazards. Special emphasis on the basics of meteorology and the use of aviation weather products.

240: Instrument Pilot Ground I. 0-3-3. Preq., Possession of the Private Pilot Certificate. Coreq., PRAV 242 or Permission of Instructor. Prepares students to pass the Basic Instrument and Navigation/Communication Stage Checks. Explores FAR/AIMs, attitude instrument flying, IFR navigation, and the Instrument Pilot Practical Test Standards.

241: Instrument Pilot Ground II. 0-3-3. Preq., PRAV 240. Coreq., PRAV 243, or Permission of Instructor. Prepares students with the knowledge to pass the Instrument Written Examination. Explores FAR/AIMs, flight navigation, and the Instrument Pilot Practical Test Standards (PTS).

242: Instrument Pilot Flight I. 3-0-1. Preq., Possession of the Private Pilot Certificate and PRAV 240 or Coreq., PRAV 240 or Permission of Instructor. (Special Fee). Prepares students to pass the Basic Instrument/Navigation/Communication Stage Checks. Explores FAR/AIMs, IFR maneuvers, and emergency procedures. Includes approximately 15 flight hours in a Cessna 172/FTD.

243: Instrument Pilot Flight II. 3-0-1. Preq., PRAV 241 and 242. Coreq., PRAV 241 or Permission of Instructor. (Special Fee). Prepares students to pass the Approach Instrument/End-of-Course Stage Checks, and the Instrument Pilot Practical Test. Passing the FAA Practical test is mandatory to earn a grade of "C" or better. Includes approximately 20 flight hours in a Cessna 172/FTD.

303: Aerodynamics. 0-3-3. The study of the physics of lift, drag, different sources of thrust, stability and modern airfoil design.

315: Airport Planning & Management. 0-3-3. Provides the student with introductory exposure to the field and scope of airport planning and management.

316: Human Factors in Aviation. 0-3-3. Overview of the human role in all aspects of aviation with emphasis on issues, problems, and solutions of unsafe acts, attitudes, errors, and deliberate actions.

320: Corporate Aviation. 0-3-3. Value/Benefit analysis of the corporate aviation decision. Topics include aircraft selection, flight department administration and operations, aircraft maintenance, FAA regulatory requirements, and future considerations.

322: Aviation Law. 0-3-3. Study of FAA administrative law, aviation liability, aircraft transaction, airspace, airport security, labor law and international aviation agencies/issues.

331: Air Carrier Systems: 0-3-3. Study of air carrier operations to include large aircraft systems, normal and emergency procedures. A course designed to prepare students for a career with a commercial carrier.

332: Air Carrier Operations. 0-3-3. An examination of the multitude of regulations governing an air carrier, focusing on 14 CFR Part 121 compliance for air carriers.

340: Commercial Pilot Ground I. 0-3-3. Preq., Private Pilot Certificate and Instrument Rating. Coreq., PRAV 342 or Permission of Instructor. Prepares students to pass the Commercial Maneuvers Stage Check. Explores regulations, airmen's information manual, weather, advanced maneuvers, navigation, and the commercial Pilot Practical Test Standards.

342: Commercial Pilot Flight I. 6-0-1. Preq., Private Pilot Certificate and Instrument Rating and Preq. Or Coreq., PRAV340 or Permission Instructor. (Special Fee) Prepares students to pass the Commercial Maneuvers Stage Check. Explores FAR/AIMs, weather, advanced commercial maneuvers, navigation, and the Commercial Pilot Practical Test Standards.

343: Commercial Pilot Flight II. 6-0-1. Preq., Private Pilot Certificate and Instrument Rating and PRAV 342 and Preq. Or Coreq., PRAV 341 or Permission of Instructor. (Special Fee) Prepares students to conduct advanced cross country navigation. Explores FAR/AIMs, advanced and GPS navigation, and the Commercial Pilot Practical Test Standards. Includes approximately 61 flight hours (25 dual/36 solo) airplane/FTD.

344: Commercial Pilot Flight III. 6-0-1. Preq., Private Pilot Certificate and Instrument Rating; PRAV 341; PRAV 343 or Permission of Instructor. (Special Fee) Prepares students to pass the end-of-cource stage check and Commercial Pilot Practical Test. Covers FAR/AIMs, complex/advanced maneuvers, the Commercial PTS. Passing the FAA Practical test is mandatory to earn a grade of "C" or better. Includes approximately 38 flight hours.

345: Introduction to Multi-Crew Environment. 6-1-1. Preq., Instrument Rating. Preparation for action in the roles of leader and follower within a multi-pilot aircrew, and an introduction to crew resource management (CRM).

400: Multi-Engine Ground. 0-2-2. Preq., Commercial Pilot Certificate with Instrument Rating; PRAV 341; PRAV 343 or Permission of Instructor. Prepares students with the knowledge to pass the Multi-Engine Pilot Practical Test. Explores FAR/AIMs, single engine operations, and the Multi-Engine Pilot PTS.

407: The National Airspace System. 0-3-3. A study of the National Airspace System to include, navigation systems, air traffic control procedures, and oceanic and international air traffic control.

410: Multi-Engine Pilot Flight. 3-0-1. Preq., Commercial Pilot Certificate with Instrument Rating and Preq. Or Coreq., PRAV 400 or Permission of Instructor. (Special Fee) Prepares students to pass the Multi-Engine Pilot Practical Test. Covers FAR/AIMs and single engine operations. Passing the FAA Practical test is mandatory to earn a grade of "C" or better. Includes approximately 15 flight hours in a Multi-Engine airplane.

411: Instructor Pilot Flight. 3-0-1 (3). Preq., Commercial Pilot Certificate with Instrument Rating. Coreq., PRAV 414 or Permission of Instructor. (Special Fee) Prepares students to pass the Certified Flight Instructor Practical Test. Explores regulations, complex/advanced maneuvers, and teaching methodology. Passing the FAA Practical test is mandatory to earn a grade of "C" or better. Includes approximately 15 flight hours training in a Cessna 172/RG.

414: Flight Instructor Ground. 0-3-3. Preq., Commercial Pilot Certificate with Instrument Rating. Coreq., PRAV 411 or Permission of Instructor. Prepares students to successfully pass the Fundamentals of Instruction Written Examination. A capstone course that explores regulations, Airmen's Information Manual, Fundamentals of Instruction, and the CFI Practical Test Standards.

415: Air Transport Pilot Flight. 3-0-1 (3). Preq., Approval of Department Head. (Special Fee) Prepares the student to successfully pass the Air Transport Pilot Practical Test. Explores regulations, advanced maneuvers, aviation safety, and the ATP Practical Test Standards.

419: Supervised Practice Flight/Ground Instruction. 3-0-1 (4). Preq. or Coreq., PRAV 411 and 414. Prepares students to be a Flight/Ground Instructor. Students will teach other student pilots, flight/ground instruction. Directed observation/instructional critique of the student's performance.

440: Airline Economics and Management. 0-3-3. An advanced study of the operation, fleet acquisition, management techniques, marketing strategies and economic characteristics of an airline.

480: Glass Cockpit-FITS. 1.5-0-1. Preq., Instrument Rating. The Frasca Mentor Flight Training Device is used to give scenario-based training in the Glass cockpit trainer for technically advanced aircraft (TAA) as proposed by FAA-Industry Training Standards (FITS).

490: The Government Role in Aviation. 0-3-3. Preq., Senior standing. A historic study of governmental actions relating to aviation, including federal, state and local laws. Includes the International Civil Aviation Environment.

491: Aviation Safety. 0-3-3. Historical development of aviation safety, accident/incident analysis and reporting, introduction to accident investigation, human factors, accident prevention and development of aviation safety programs.

495: Aviation Professionalism. 0-3-3. Preq., Senior Standing. A capstone course covering industry and career opportunities emphasizing job acquisition and professional responsibility. A general overview of business management and labor practices/philosophies.

496: Internship in Aviation. 3-12 hours credit. Preq., Department Head's approval. A capstone course for internship in area(s) of specialization. Supervised work in government or industry to gain experience in aviation fields. Minimum 90 clock hours; maximum 360 clock hours.

498: Independent Study. 0-3-3 (6). Preq., Department Head's approval. Directed research and analysis of an aviation topic assigned by the Department Head. May be repeated once for credit with a change of topic.

PSYCHOLOGY (PSYC)

102: General Psychology. 0-3-3. A survey of fundamental processes and concepts of human behavior. Master Course Articulation Matrix* [LCCN: CPSY 2013]

202: Advanced General Psychology. 0-3-3. Preq., PSYC 102 or HNRS 112. An intensive survey of literature and procedures in general psychology.

204: Educational Psychology. 0-3-3. Education Majors only. A survey course designed to meet the needs of prospective teachers by bringing an application of psychological principles to the instructional setting.

205: Child Psychology. 0-3-3. Education Majors only. A study of the physical and mental growth of the child, the social, emotional, motor development, interests, and imaginative activities. Master Course Articulation Matrix* [LCCN: CPSY 2313]

206: Adolescent Psychology. 0-3-3. Education Majors only. A study of the physical and mental growth of youth during the period of adolescence and the transition from childhood to adulthood. Master Course Articulation Matrix* [LCCN: CPSY 2213]

207: Learning and Development. 1-3-3. An in-depth study of human development with emphasis on contemporary research relating to human learning and the application of psychological principles.

208: Developmental Psychology. 0-3-3. Non-Psychology Majors only. A comprehensive examination of human psychosocial, emotional, and cognitive development. Master Course Articulation Matrix* [LCCN: CPSY 2113]

218: Fundamentals of Abnormal Psychology. 0-3-3. Non-Psychology Majors only. A survey of fundamental information in psychopathology.

300: Elementary Statistical Methods in the Social Sciences. 0-3-3. A course designed to provide an orientation to statistical concepts used in the behavioral science field.

301: Fields of Psychology. 0-3-3. A study of the history of major fields and trends in psychology.

302: Physiological Psychology. 0-3-3. Preq., BISC 224 (or concurrent enrollment), PSYC 202 OR HNRS 202. An intensive study of the physiology of the nervous system, and its relation to behavior.

303: Parapsychology. 0-3-3. Preq., PSYC 102 or HNRS 112, and PSYC 202 or HNRS 202. Critical examination of theoretical and methodological issues in the study of non-conventional sensory, perceptual, and cognitive processes.

304: Social Psychology. 0-3-3. Preq., PSYC 202 or HNRS 202. A study of the nature of social behavior, social stimulation and response; a psychological analysis of society and social institutions.

305: Practical Psychology. 0-3-3. Preq., PSYC 102 or HNRS 112. A survey of the practical application of psychological concepts to daily life. Emphasis on human social relationships, self-concept and personal growth.

308: Human Growth and Development. 0-3-3. Preq., PSYC 202 or HNRS 202, and PSYC 320. An advanced survey of human development from conception to old age and death.

310: Psychology of Personality. 0-3-3. Preq., PSYC 202 or HNRS 202. A study of major theories of personality.

315: Research Design and Statistics I. 3-2-3. Preq., PSYC 300 or STAT 200. A beginning course in the scientific method in psychology including design and statistical analysis.

320: Learning and Cognition. 0-3-3. A survey of the current theories of learning and cognition.

321: Psychological Testing. 0-3-3. Preq., PSYC 300. An introduction to the principles and practices of psychological testing and evaluation.

400: Behavior Modification. 0-3-3. Applied analysis to individual behaviors using concepts, and principles from experimental analysis of behavior. **(G)**

404: Seminar In Psychology. 0-3-3-(9). An intensive survey in selected current topics in the field of psychology. **(G)** (Graduate students should contact instructor for more specific criteria.)

411: Crisis Intervention. 0-3-3. Preq., 6 hours in PSYC and COUN 400 or approval of department head. Overview of theories, strategies, and service delivery systems in crisis intervention. **(G)**

414: Dynamics of Adjustment. 0-3-3. A comprehensive study of the problems of self-adjustment and self-management and the development of a well integrated personality. **(G)**

415: Research Design and Statistics II. 3-2-3. Preq., PSYC 315. An advanced course in experimental psychology and statistics with an emphasis on computer and internet applications in research.

418: Abnormal Psychology. 0-3-3. Preq., PSYC 310. A study of the nature and development of abnormal behavior from a psychological viewpoint. **(G)**

430: Evolutionary Psychology. 0-3-3. Preq., PSYC 202 or HNRS 202. An introduction to the field of evolutionary psychology.

450: Introduction to Clinical Psychology. 0-3-3. Preq., consent of instructor. Introduction to clinical psychology as a science and profession. Lectures, discussions, demonstrations, and field observations are provided for an overview of clinical psychology.

455: Environmental Psychology. 0-3-3. Preq., PSYC 102 or HNRS 112. A survey of concepts about individual's interaction with the physical environment. Emphasis is placed upon designing physical surroundings to serve social and personal needs.

459: Research Methods in Psychology. 0-3-3. Preq., PSYC 300. An examination of the practical problems of designing, conducting, and interpreting research and of the structure and organization of research writing.

460: Field Research in Psychology. 1 - 3 hours credit (9). Preq., PSYC 415. Supervised practice in methods of field research as a basic tool of psychology. Each student develops and executes a field research project. May be repeated for a maximum of 9 hours credit.

461: Data Analysis and Interpretation. 1-3 hours credit (3). Preq., PSYC 300 or equivalent. A course designed to provide the skills necessary to use currently existing computer software to analyze data encountered in the social sciences.

465: Industrial Psychology. 0-3-3. The application of psychological findings and concepts to the industrial environment. **(G)**

466: Introduction to Organizational Psychology. 0-3-3. Topics covered include the application of phychological theory to organizational phenomena such as motivation, satisfaction, commitment, and wellbeing.

469: Psychology of Sexual Behavior. 0-3-3. Preq., PSYC 102 or HNRS 112 and junior standing. Survey of both normal and abnormal sexual behavior and selected techniques employed in sex therapy and counseling. **(G)**

474: Psychology of Adult Learning and Development. 0-3-3. Provides understanding of cognitive and psychosocial development in young, middle, and later adulthood. Emphasis is on aging process and factors, which affect adult learning.

475: Death, Dying and Grievance Process. 0-3-3. Exploration of one's personal values toward death and the grieving process, funeral customs and practices, counseling the terminally ill, and various customs of death. Graduate students should contact instructor for more specific criteria. **(G)**

480: Psychology of Sex Roles. 0-3-3. Overview of psychology of sex roles including history, theory, methodology, sex differences, and implications for development, socialization, abnormal behavior, counseling and gender. **(G)**

484: Introduction to Human Relations. 0-3-3. An introduction to human relations factors in various work settings.

485: Industrial Behavioral Analysis. 0-3-3. Application to behavior change techniques in work settings. A study of how to effectively manage others' as well as one's own work habits.

490: Social and Psychological Aspects of Blindness. 0-3-3. Preq., enrollment in Educational Psychology Visual Impairments program or permission of instructor. Psychological and environmental aspects of blindness. Current and historical overview of practices & trends in the rehabilitation and education of individuals with visual impairments. **(G)**

494: Special Topics. 1-4 hours credit (9). Preq., 21 hours in psychology. Selected topics in psychology. May be repeated for credit up to a total of 9 semester hours with a change in topic.

495: Field Experiences. 1-4 hours credit (9). Preq. 15 credit hours in psychology, 3.20 cumulative GPA, and approval of instructor. Selected field experiences in psychology. May be repeated for credit up to a total of 9 semester hours with department head permission. (Pass/Fail)

499: Health Psychology. 0-3-3. Preq., PSYC 102 or HNRS 112. A survey of the systematic application of psychology to the relevant areas of health, disease and the health care system.

502: Cognitive Psychology. 0-3-3. Preq. enrollment in graduate program in psychology, counseling, or permission of instructor. Contemporary approaches to cognitive psychology; a broad survey of social cognition including attention, cognitive organization, mental reasoning, information processing, decision making, and human memory.

505: Couples Therapy. 0-3-3. An overview of couples development and therapy.

506: Family Therapy. 0-3-3. An overview of family development and therapy.

507: Learning and Development. 0-3-3. Provides an understanding of forces, which propel learning and development and enables teachers to help students successfully meet the unique demands of school.

508: Psychological Aspects of Disability. 0-3-3. An examination of attitudes, adjustment problems, sexuality, family and program implications for disabled populations.

510: Principles of Human Development. 0-3-3. Biological, psychological, and cultural interrelationships in human development.

511: Special Topics in Crisis Intervention. 0-3-3. Preq., Enrollment in Counseling and Guidance Program or permission of the instructor. Special topic in theories and strategies of crisis intervention.

512: Advanced Abnormal Psychology. 0-3-3. Preq., Enrollment in Counseling MA Program or permission of instructor. Comprehensive review of the major characteristics, etiology, and implications for treatment of the major psychological disorders. Clinical and research findings are emphasized.

513: Organizational Psychology. 0-3-3. A survey of current research and theories comprising organizational psychology. Critical-thinking skills are used to evaluate empirical research and current theories in the field.

516: Industrial Psychology. 0-3-3 Topics covered include the professional and legal requirements for selection instruments; design and evaluation of selection systems, designing and conducting job analyses and selection interviews.

517: Training and Development. 0-3-3. Provides the skills necessary to analyze, design, and evaluate training in organizations. Topics include determining training needs, task analysis, learning objectives, training methodologies, and evaluation.

521: Job Analysis and Performance Appraisal. 0-3-3. Preq., PSYC 542. Examination of methodologies related to various job analysis and performance appraisal systems, including systems focused on work context and work content.

523: Leadership and Decision-Making. 0-3-3. Examination of the various skills, behaviors, and attitudes required for effective leadership. Includes practices, decision-making, communication and ethical issues related to leadership.

524: Internship in Industrial/Organizational Psychology. 20-1-3 (6). Supervised experiences in an applied setting involving application of skills and field work in Industrial/Organizational Psychology.

533: Community Psychology/Rural Mental Health. 0-3-3. A study of community systems, intervention techniques, consultation methods, history and current status of the community mental health movement with particular emphasis on rural mental health research. Addresses psychological practice issues in the rural environment.

541: Research and Statistical Methods. 0-3-3. A study of the research and statistical methods commonly used in the Behavioral Sciences. Emphasis on quantitative methodology and APA writing style.

542: Statistical Methods in Behavioral Sciences. 0-3-3. Preq., PSYC 541 or HEC 504. A practical application of research and statistical methods using computer software.

543: Psychometrics. 0-4-3. Preq., Graduate enrollment in I/O Psychology, Educational Psychology, or Counseling Psychology, or permission of instructor. Test and measurement theory, including classical, true score, and item response theory models. Covers reliability, validity, scaling, norms, and score transforming issues.

556: Issues in Domestic Violence. 0-3-3. A review of contemporary literature which deals with the psychology of domestic violence.

580: Developmental Psychology of Blindness. 0-3-3. This course emphasizes knowledge of physical, social, and emotional development of the blind including acquisition of motor, language, and cognitive skills, birth through adulthood.

585: Comprehensive Exam in Industrial/Organizational Psychology. No credit. (Pass/Fail). Required for all students in the Industrial/Organizational psychology master's program. Usually taken in the last term before graduation, but other arrangements may be made under extenuating circumstances.

589: Special Topics in Psychology. 1-4 hours credit, may be repeated. Preq., enrollment in relevant graduate program in Psychology or permission of instructor. Current or specialized topics in psychology.

599: Master's Thesis. 0-3-3 (6 hours minimum). (Pass/Fail).. Original research conducted under the supervision of a departmental faculty member in the student's program area. Student must be enrolled whenever university facilities or faculty are used.

600: Seminar: Issues in Academic Psychology & Teaching. 0-1-1 (9). May be repeated. Required of resident Counseling Psychology PhD students each quarter. Study of professional issues and research applications in counseling psychology. **Non-degree credit.**

601: Historical Foundations of Modern Psychology. 0-3-3. Historical development of psychology from its philosophical beginnings to the present.

602: Physiological Psychology. 0-3-3. A study of the neuroanatomical and neurochemical bases of behavior; contributions of physiological processes to fundamental behavioral processes.

603: Sensation and Perception. 0-3-3. Sensory and perceptual phenomena that influence motivation, cognition, and learning.

604: Theories of Social Psychology. 0-3-3. Theory and research concerning interpersonal perceptions, attitude formation and change, social motivation, and interactive processes.

605: Child Psychopathology. 0-3-3. Examines diagnosis and treatment of child and adolescent disorders from empirical, theoretical, and practical viewpoints.

607: Fundamentals of Psychopharmacology. 0-4-3. Preq., enrollment in Ph.D. program in Counseling Psychology or permission of the instructor. Biochemical substrates of emotion, affect, and behavior are reviewed. Psychopharmaceutical mechanisms and intervention strategies are emphasized along with a review of the treatment research literature

608: Developmental Psychology. 0-3-3. An advanced theory and research based study of the biological, psychological, social, and cultural processes in human growth and development. Counseling Psychology PhD students only.

609: Personality Theory. 0-3-3. Comparative approach to personality theory from the framework of philosophical issues, definitional problems, and current research issues.

610: Professional Issues and Ethics. 0-3-3. An investigation of legal and ethical issues relevant to the practice of counseling psychology.

611: Advanced Group Counseling and Psychotherapy. 2-3-3. Group counseling theories with emphasis on advanced techniques and application, ethical responsibilities, and current trends with group research methodology. Practicum experience required.

614: Professional Seminar in Counseling Psychology. 0-3-3 (6). Preq., Counseling Psychology PhD students only. A survey of trends and issues pertinent to the professional activities of counseling psychologists.

615: Couples and Family Therapy. 0-3-3. Preq., enrollment in PhD program in Counselling Psychology. An exploration of empirically supported couple and family therapies.

616: Intellectual Assessment. 0-3-3. Preq., Enrollment in Counseling Psychology PhD program and approval of instructor. This course focuses on psychological assessment and interpretation of tests of ability, achievement, and higher cognitive functions. Differential psychodiagnosis and formal report writing are emphasized.

617: Personality Assessment: Objective and Projective. 0-3-3. Preq., approval of instructor. This course focuses on psychological assessment using tests of personality, DSM-5 psychodiagnosis, and DSM-5 Axis II disorders. Psychological report writing and interpretation are emphasized.

618: Motivation. 0-3-3. The study of levels of motivation from ethological to cognitive-social motives; relevant motivational theories are used to explain human behaviors.

619: Psychopathology. 0-3-3. Comprehensive review of the etiology of psychological disorders and their diagnosis; clinical research findings are emphasized.

620: Sex Roles and Behavior. 0-3-3. An investigation of the effect of gender upon cognition, affect, and behavior.

621: Career Theory and Assessment. 0-3-3. Preq., Psychology PhD students only. Intensive review of theories and research literature on career development across the life span. Application of theories to assessment and counseling of career clients using interest, ability, and personality assessments.

622: Theories of Counseling and Psychotherapy. 0-3-3. Preq., Counseling Psychology PhD students only. A comparative approach to theories of counseling and psychotherapy at an advanced level.

623: Integrative Assessment. 0-3-3. Preq., PSYC 616 & 617, Psychology PhD students only. Emphasis on selection, administration, and combination of results from various assessment instruments into an integrated whole. Integrative report writing is emphasized.

624: Counseling Psychology Internship. 1-3 hours credit. Minimum credit allowed is 4 hours. Preq., completion of departmental requirements and approval of Counseling/Psychology Program Director and Department Head. One calendar year (or two half-years) of supervised full-time, counseling psychology experience in a Department-approved (typically, APA-approved) internship facility.

625: Research Seminar. 0-3-3. Preq., Psychology PhD students only, or signature of instructor. Integration of research design, methodology, and statistics in psychological research.

626: Techniques and Methods of Counseling. 0-3-3. Preq., Enrollment in Ph.D. Program in Counseling Psychology. Overview and application of counseling techniques and Methods employed in psychotherapy.

627: Advanced Assessment Topics. 0-3-3 (9). Preq., Psychology PhD students only. A rotating topics course providing advanced training in selected assessment instruments and processes. May be repeated twice.

628. Special Topics in Psychology. 1-3 hours credit (9). May be repeated. Psychology PhD students only or permission of instructor. Intensive study of a selected topic in psychology.

629: Advanced Seminar in Counseling Theories & Techniques. 0-3-3 (9). May be repeated. Preq., Counseling Psychology PhD students only. A rotating topics course providing advanced study of selected counseling theories and therapeutic techniques.

630: Supervision in Counseling & Psychotherapy. 0-3-3. Preq., Counseling Psychology PhD students only. Overview of supervision/consultation models, including application of principles to clinical practice.

631: Multiculturalism and Diversity. 0-3-3. Preq., Psychology PhD students only. In-depth examination of issues related to multiculturalism and diversity, with a focus on implications for professional practice at the doctoral level.

632: Psychotherapy Research. 0-3-3. Preq., Psychology PhD students only. Investigation of research on change elements and outcome research in psychotherapy, including factors impacting change processes and cost-benefit issues raised by managed mental health care.

641: Advanced Experimental Design and Analysis. 0-3-3. Covers the principles of designing and implementing experimental, quasi-experimental, correlational, and descriptive research designs, especially as they pertain to counseling psychology

642: Advanced Statistical Methods. 0-3-3. Preq., PSYC 641. Advanced univariate statistical theory and methods, with an emphasis on statistical problems likely to be encountered by counseling psychologists.

643: Multivariate Statistics. 0-4-3. Preq., PSYC 642. Covers advanced multivariate statistical techniques, including (but not limited to) multiple regression, MANOVA/ANCOVA, and factor analysis, and their implementation in SPSS.

650: Practicum in Counseling Psychology. 3 hours credit (9). (Pass/Fail). May be repeated. Supervised counseling experience within a practicum setting.

651: Advanced Practicum in Counseling Psychology. 1-3 hours credit (9). (Pass/Fail). Preq., PSYC 650 (9 hours total). May be repeated. Progressive development of advanced clinical skills within an approved practicum setting. Counseling Psychology PhD students only.

652: Field Placement in Practicum Setting. 1-3 hours (18). (Pass/Fail). May be repeated. Preq., PSYC 650 and 651 (three quarters each), Counseling Psychology PhD students only. Advanced practicum in a field setting.

660: Dissertation Research. 1-3 hours credit. (Pass/Fail) Proposal, research, and defense of original doctoral-level research study. May be repeated each quarter for 3 credit hours per quarter. Minimum credit allowed is 6 hours. Enrollment is minimally required during the term in which the dissertation proposal is defended and the term in which the dissertation research is defended.

685: Comprehensive Exam in Counseling Psychology. No credit. (Pass/Fail). Required for all students in the Counseling Psychology doctoral program. Must be completed before applications are made for internship and before dissertation hours are begun.

700: Seminar: Topics in I/O Psychology. 0-1-1 (6). Study of current professional issues and research applications in industrial/organizational psychology. May be repeated for up to 6 graduate hours of credit with change of topic.

710: Foundations and Ethics of Industrial and Organizational Psychology. 0-3-3. Exploration of the philosophical foundations of Industrial and Organizational psychology in terms of both epistemology and ethics.

713: Advanced Organizational Psychology. 0-3-3. Advanced investigation of the field of Organizational Psychology including overarching theoretical models, research designs, and future directions.

714: Organizational Consulting. 0-3-3. This course will focus on theory, research, and practice of consulting for the enhancement of performance in a variety of organizational settings.

716: Personnel Psychology. 0-3-3. An advanced review of the research and literature on personnel selection.

720: Advanced Analytic Methods: Applied Industrial and Organizational Psychology. 0-3-3. A hands-on introduction to specialized analytic approaches for use in Industrial and Organizational Psychology.

730: Work Engagement. 0-3-3. An introduction and examination of the major theoretical and empirical approaches to work engagement.

740: Teams in Organizations. 0-3-3. Covers the fundamental concepts relating to team dynamics, team decision making, and interpersonal conflict.

743: Advanced Psychometric Theory. 0-3-3. Preq., PSYC 543 and 643. An in-depth analysis of advanced psychometric theory including factor analytic, IRT and Rasch models.

745: Human Performance Improvement. 0-3-3. Examines processes used to identify and analyze organizational and individual performance and how to plan for future performance improvement.

750: Industrial/Organizational Psychology Practicum. 3 hours credit (6). (Pass/Fail). Preq., PSYC 785. Supervised experience within a pre-approved organizational setting. May be repeated once for credit.

760: Organizational Development and Change. 0-3-3. An advanced exploration of the theoretical frameworks and research issues involved in organizational development and change.

785: Comprehensive Exam in Industrial/Organizational Psychology. No credit. Required for all students in the Industrial/Organizatinal doctoral program. Must be successfully completed before taking practicum or dissertation hours.

QUANTITATIVE ANALYSIS (QA)

233: Basic Business Statistics. 0-3-3. Preq., MATH 125. Descriptive statistics, probability, sampling distributions, confidence intervals, inference, and regression and correlation. Emphasis is given to business applications. Master Course Articulation Matrix* [LCCN: CBUS 2303]

390: Quantitative Methods for Business and Economics. 0-3-3. Preq., junior standing. Presentation and review of pertinent quantitative topics to furnish the necessary background for the graduate quantitative methods field of study.

432: Intermediate Business Statistics. 0-3-3. Preq., QA 233. Applied statistical methods utilizing the computerized Statistical Analysis System; multiple regression and correlation, Chi-Square, analysis of variance, and nonparametric methods.

494: Principles of Quantitative Analysis. 0-0-3. Self-paced course in quantitative analysis sufficient to enable student to be successful with core MBA classes. Cannot be taken for credit towards an undergraduate degree. (Pass/Fail).

522: Advanced Business Statistics. 0-3-3. Preq., QA 432. Applied statistical methods utilizing the computerized Statistical Analysis System (SAS): multiple regression and correlation, biased regression, analysis of variance, multiple comparisons, and non-parametric methods.

525: Quantitative Approaches for Decision-Making. 0-3-3. Preq., QA 233 and QA 390 or consent of instructor. Survey of the quantitative and statistical methods for managerial decision making.

540: Advanced Management Science Methods. 0-3-3. Preq., QA 430 or consent of instructor. Quantitative decision-making including linear, integer and parametric programming; project planning and scheduling with CPM/PERT and MAP as applied to business management.

550: Directed Study in Quantitative Analysis. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of quantitative analysis.

603: Advanced Seminar in Research. 0-3-3 (6). Requires Doctoral standing or special permission from instructor. May be repeated once for credit. The seminar will cover current trends in research. Critical evaluation of research is required.

604: Preparing Publishable Research. 1-3 hours. Requires doctoral standing. Integration of literature, methods, and statistics in quantitative analysis. Students work independently with faculty to develop research papers for publication. Oral presentation of research required.

611: Business Statistics I. 0-3-3. Preq., Doctoral standing. The fundamentals required to understand probability models and statistical methods. Topics include random variables and distributions, mathematical expectation, probability densities and sampling distributions.

612: Business Statistics II. 0-3-3. Preq., QA 611 and Doctoral standing. The fundamentals of statistical inference. Topics include estimation, hypothesis testing, regression and analysis of variance. Includes applied coursework using statistical software.

620: Seminar in Management Science. 0-3-3. Study of current topics in the discipline of Management Science. In-depth analysis of a specialized field along with an investigation of the literature.

625: Applied Regression Analysis. 0-3-3. Preq., QA 432 or consent of instructor. Requires Doctoral standing. May require additional class meetings. Least squares estimation, model interpretation, model formulation and diagnostics, inference, estimation and prediction, predictor transformations and interactions, response transformations, dummy variables, multicollinearity, computer software.

630: Applied Design and Analysis of Experiments. 0-3-3. Preq., QA 625 or consent of instructor. Requires Doctoral standing. ANOVA for comparing means, completely randomized designs, randomized block designs, factorial designs, analysis of covariance, multiple comparison tests, diagnostics, sample size determination, computer software.

635: Applied Multivariate Statistics. 0-3-3. Preq., QA 630 or consent of instructor. Requires Doctoral standing. Multivariate normal distribution, eigenvalues and eigenvectors, principal components analysis, factor analysis, discriminant analysis, logistic regression, cluster analysis, and canonical correlation analysis, MANOVA, MANCOVA, computer software.

640: Advanced Management Science Methods. 0-3-3. Preq., QA 430 or consent of instructor. Requires Doctoral standing. May require additional class meetings. Quantitative decision-making including linear, integer and parametric programming; project planning and scheduling with CPM/PERT and MAP as applied to business management. Credit will not be given for QA 640 if credit is given for QA 540.

650: Directed Study in Quantitative Analysis. 1-3 hours credit. (Pass/Fail). Hours and credits to be arranged. Consent of instructor and approval of department head required. Special problem or specific area of quantitative analysis.

685: Comprehensive Exam in Quantitative Analysis. No credit. (Pass/Fail). Doctoral standing required. Required for all business administration doctoral students seeking to take the comprehensive exam in quantitative analysis. Successful completion is a prerequisite to the oral comprehensive exam for those seeking a primary field or examined minor in quantitative analysis. Requires consent of graduate director.

READING (READ)

200: Reading Skills Improvement. 0-3-3. This course is designed to assist any student who would like to improve basic reading skills. Emphasis on comprehension, concentration and speed.

523: Materials & Methods Elementary/Middle Language Arts. 2-3-3. Using current principles, methods, and research pertaining to the teaching of language arts, the teacher candidate will develop foundation skills for teaching language arts.

524. Elementary/Middle Methods for Teaching Reading. 2-3-3. Methods and Materials for Elementary/Middle Reading. Principles, methods, and research pertaining to the teaching of reading will be emphasized.

531: Foundations of Reading. 0-3-3. Understanding of historical perspectives involved in the reading process and different reading instructional approaches and strategies.

532: Reading Curriculum Materials and Development. 0-3-3. Analysis of reading curriculum and development of instructional materials for various levels of reading ability.

535: Clinical Reading I. 10-2-3. Clinical experience in diagnosing reading problems of school children.

536: Clinical Reading II. 10-2-3. Practicum in remedial reading for school children.

538: Supervision and Curriculum Development in Reading. 0-3-3. Construction of an innovative curriculum in reading, plans for implementation of new curriculum, and supervision of the reading program.

544: Reading in the Content Areas. 0-3-3. Provides teaching methods and research findings related to the reading process as it applies to the various content areas of the curriculum.

RURAL DEVELOPMENT (RDEV)

410: Introduction to Rural Economic Development. 0-3-3. Economic and community development theory with application to community economic growth, community markets, institutions and strategic planning.

415: Overview of Geographic Technologies for Rural Development. 0-3-3. Use of GIS, GPS, and Remote Sensing software tools for rural development with basic applications and practical experience in map display and problem solving.

440: Grants and Grant Writing. 0-3-3. Sources of grant funding opportunities, tools necessary for successful proposals including data collection and synthesis, budgeting and narrative content, post-award management and recordkeepoing.

510: Introduction to Rural Economic Development. 0-3-3. Economic and community development theory with application to community economic growth, community markets, institutions and strategic planning.

540: Grant Writing for Rural Development. 0-3-3. Sources of grant funding opportunities, tools necessary for successful proposals including data collection and synthesis, budgeting and narrative content, post-award management and recordkeeping.

545: Global Electronic Commerce with Agricultural Applications. 0-3-3. Emerging online technologies and trends and their influence on the electronic commerce marketplace. Topics include software, legal issues and online marketing strategies.

550: International Trade and Policy. 0-3-3. Overview of international trade theory and policy including patterns of trade and the effects of trade on domestic income patterns and on economic growth.

SOCIAL SCIENCE (SOSC)

241: Tech Latin America I. 3-0-1. Preq., Consent of instructor. Relationships between people, landscapes, and their associated natural resources. Topics include cultural awareness, history, sustainable development, ecotrouism, deforestation and other related issues in Central America. Credit will not be given for SOSC 241 if credit is given for FOR 241. **(IER)**

242: Tech Latin America II. 3-0-2. Preq., Consent of instructor. Continuation of SOSC 241 that includes travel portion of course sequence: Relationships between people, landscapes, and associated natural resource use from a firsthand international perspective. Credit will not be given for SOSC 242 if credit is given for FOR 242. **(IER)**

470: Senior Reading Program. 3 hours credit. A reading/research course optional for all majors in geography, political science, and sociology.

SOCIOLOGY (SOC)

201: Introduction to Sociology. 0-3-3. The scientific study of the patterns and processes of human social interaction. Master Course Articulation Matrix* [LCCN: CSOC 2013]

202: Social Problems. 0-3-3. Selected social problems in contemporary American society. Master Course Articulation Matrix* [LCCN: CSOC 2113]

205: Introduction to Anthropology. 0-3-3. Four-field overview of biological, cultural, archaeological and linguistic anthropology, including human evolution and cultural diversity. Master Course Articulation Matrix* [LCCN: CGRG 2013] or [LCCN: CATR 1013]

210: Introduction to Criminal Justice. 0-3-3. A survey of the criminal justice system, its history and organization at the local, state and federal levels. Master Course Articulation Matrix* [LCCN: CCRJ 1013]

230: The Social Welfare System in the United States. 0-3-3. A study of the social welfare system and the effort to prevent or resolve social problems encountered by individuals, groups, families, and communities.

280: Sociology of Religion. 0-3-3. Preq., SOC 201. Examines religious beliefs and practices, their causes and effects, and the relation of religion to other social institutions.

306: Juvenile Delinquency. 0-3-3. Preq., PSYC 102 OR HNRS 112 or SOC 201 or 202. The nature, causes, extent, and methods of treatment of juvenile delinquency.

308: The Family. 0-3-3. A study of the family as a social institution with comparisons of family life in various societies.

312: Race and Ethnic Relations. 0-3-3. Preq., SOC 201 or GEOG 205 or 210. Factors & conditions which underlie disagreement about fundamental values; their relation to social maladjustment; evaluation of theories; group approaches to reintegration. Also listed as GEOG 312.

313: The Sociology of Deviance. 0-3-3. Factors and conditions which underlie disagreement about fundamental values; their relation to social maladjustment; evaluation of theories; group approaches to reintegration.

314: Criminology. 0-3-3. Theories of the origins of crime; analysis of specific types of offenders, prevention, control, and treatment.

320: Research Methods. 0-3-3. Preq., Statistics course or consent of instructor. Scientific methods and their application in social analysis; procedures in testing sociological theory; computer and data analysis.

325: Social Network Analysis. 0-3-3. Preq., SOC 201. An introduction to the fundamental concepts, methods, applications, and analytical tools of social network analysis.

330: An Introduction to Social Work. 0-3-3. An examination of Social Work within the social welfare system. A review of the multiple roles of the social worker in service delivery and practice.

345: Social Stratification. 0-3-3. Types and results of social inequality; social class, status and power as determinants of behavior, values and life chances.

360: Sociology of Terrorism and Social Movements. 0-3-3. Preq., SOC 201. Examines non-institutional movements for social and political change, conditions for their emergence, recruitment and interaction processes.

370: Environmental Sociology. 0-3-3. Preq., SOC 201. Examines population, food, resources, energy, pollution, urbanization, wilderness, biodiversity and other topics in light of current sociological theories.

380: Gender and Society. 0-3-3. Examination of the social construction of gender difference and gender inequality, through socialization practices, interactions with others and the influence of major social institutions.

401: Social Theory. 0-3-3. Preq., SOC 201, Junior standing or consent of instructor. The development of sociological theory and its relation to research.

410: Family Violence. 0-3-3. A sociological examination of the types, extent, causes, and consequences of violence between family members and intimate partners; policy implication are explored. **(G)**

420: Treatment of Offenders. 0-3-3. Preq., SOC 314. A study of principles of treatment of offenders; application of social science principles to treatment of offenders; interviewing, guidance, and counseling of offenders.

424: The Sociology of Corrections. 0-3-3. Trends, issues and problems in the field of corrections.

425: Family Therapy. 0-3-3. Preq., SOC 201 or FCS 210 or SOC 308. A survey of family therapy; the family as a system; theoretical models of modern practice, state laws and policies; code of ethics governing family therapy.

435: Sociology of Aging. 0-3-3. Preq., SOC 201 or consent of instructor. Social and biological problems as a consequence of aging. Current issues, deficiencies and resources available to deal with specific problems.

436: Grieving and Loss. 0-3-3. An analysis of loss, grief and bereavement. An assessment of services, programs, treatments, stress reduction techniques and communication skills. **(G)**

440: Women in the Developing World. 0-3-3. A seminar course that critically examines women's lives in developing countries and the impact of global, economic and political systems on their lives.

444: Substance Abuse. 0-3-3. Social, cultural and individual problems associated with alcohol and drug use. Family and other group responses. The nature and treatment of alcoholism and drug addiction.

489: Special Topics in Sociology. 0-3-3 (6). Preq., Permission of Instructor. Seminar in an area of current interest in the discipline of sociology, with topic designated by the instructor. May be repeated once with different topic.

SPANISH (SPAN)

101: Elementary Spanish. 0-3-3. Conversation reading and grammar. Non-native speakers only. Master Course Articulation Matrix* [LCCN: CSPN 1013] or [LCCN: CSPN 1026]

102: Elementary Spanish. 0-3-3. Preq., SPAN 101. Conversation reading and grammar. Non-native speakers only. Master Course Articulation Matrix* [LCCN: CSPN 1023] or [LCCN: CSPN 1026]

201: Intermediate Spanish. 0-3-3. Preq., SPAN 102. Structure, cultural reading, conversation. Non-native speakers only. Master Course Articulation Matrix* [LCCN: CSPN 2013] or [LCCN: CSPN 2026]

202: Intermediate Spanish. 0-3-3. Preq., SPAN 201. Structure, cultural reading, conversation. Non-native speakers only. Master Course Articulation Matrix* [LCCN: CSPN 2023] or [LCCN: CSPN 2026]

301: Spanish Conversation and Composition. 0-3-3. Preq., SPAN 202. Non-native speakers only. Conversation on everyday topics and review of elements of Spanish through structured compositions.

302: Spanish Conversation and Composition. 0-3-3. Preq., SPAN 202. Non-native speakers only. Conversation on everyday topics and review of elements of Spanish through structured compositions.

380: Readings in Spanish Literature. 0-3-3. Preq., SPAN 301 or 302 or permission of department head. Required for major in Spanish. A survey of the masterpieces of Spanish literature.

381: Readings in Spanish American Literature. 0-3-3. Preq., SPAN 301 or 302 or permission of department head. Required for major in Spanish. Survey of the masterpieces of Spanish American literature.

403: The Novel in Spain. 0-3-3. Preq., SPAN 380 or 381 or permission of department head. Study of the novel in Spain from the sixteenth century to the present.

405: The Modern Drama of Spain. 0-3-3. Preq., SPAN 380, 381 or permission of department head. Study of the drama in Spain in the 19th and 20th centuries.

407: The Novel of Latin America. 0-3-3. Preq., SPAN 380, 381 or permission of department head. Study of representative novels of Latin America. Mexico excepted.

408: Spanish Civilization. 0-3-3. Preq., SPAN 380, 381 or permission of department head. Lectures and readings in Spanish history, geography, government, language, music art, etc.

425: The Novel in Mexico. 0-3-3. Preq., SPAN 380, 381 or permission of department head. A study of outstanding novels from 1800 to the present.

426: Spanish Literature in English Translation. 0-3-3 (6). Representative works of Spanish literature from the Middle Ages to the 20th century. Offered in English translation; repeatable for credit with different course content. May not be counted towards a major or minor in Spanish. Also listed as ENGL 426. **(G) (IER)**

427: Latin American Literature in English Translation. 0-3-3 (6). Representative works of 20th century Latin American literature; repeatable for credit with different course content. May not be counted towards a major or minor in Spanish. Also listed as ENGL 427.**(G) (IER)**

450: The Spanish Language. 0-3-3. Preq., 21 hours of Spanish or permission of department head. Advanced grammar. General characteristics of the language, including sources, etymology, dialects.

460: Applied Linguistics for Spanish. 0-3-3. Preq., SPAN 450 or permission of department head. Pertinent theories of psycholinguistics and sociolinguistics. Contrastive study of Spanish and English patterns and structures.

480: Commercial Spanish. 0-3-3. Preq., SPAN 450 or permission of department head. Study of common commercial forms for use in Spanish correspondence and business.

SPECIAL EDUCATION (SPED)

500: Curriculum Design for Exceptional Students. 4-2-3. A examination of issues and strategies required in selecting and developing curriculum for exceptional students. Emphasis on the scope and sequence of curriculum for all areas of exceptional students.

501: Contemporary Issues in Special Education. 0-3-3 (6). Historical and comparative approaches to theoretical issues and research, critical examination of assumptions, sampling, and tactics of research.

503: Educationally Disadvantaged. 0-3-3. Biological, learning, interpersonal, and motivational determinants of behavior, cultural deprivation as a factor in school learning; educational implications.

510: The Exceptional Adolescent Student. 0-3-3. Advanced course designed to acquaint the student with the complex challenges of the exceptional adolescent. Emphasis on remedial efforts, pre-vocational and vocational skills needed by the exceptional adolescent.

517: Curriculum for the Gifted/Talented. 0-3-3. Preq., consent of area coordinator. Curriculum models in gifted/talented education, emphasizing essential principles and skills necessary for designing, implementing, and evaluating educational plans for gifted/talented students.

520: Advanced Study: Mental Retardation. 0-3-3. Preq., EDUC 541 and SPED 501. Advanced study of the biological, social, and psychological factors in retarded behavior.

530: Advanced Study: Nonsensory Physically Impaired. 0-3-3. Preq., EDUC 541 and SPED 501. Advanced study of the biological, social and psychological factors in crippling conditions and special health problems.

540: Advanced Study: Behavior Disorders. 0-3-3. Preq., EDUC 541 and SPED 501. Advanced study of the biological, social, and psychological factors in behavior disorders.

560: Administration in Special Education. 0-3-3. The major administrative and supervision functions necessary for the effective operation of special education programs and the major areas of knowledge necessary to carry out these basic functions.

562: Advanced Study: School-Related Language Problems in Special Education. 0-3-3. Analysis of language deviations and disorders in classroom situations, understanding of assessment, approaches and models for remediation/enrichment. Intervention and flexibility in curriculum development.

570: Advanced Study: Learning Disabilities. 0-3-3. Advanced study of the biological, social, and psychological factors in learning disabilities.

575: Behavior Technology in Special Education. 3-2-3. Preq., SPED 475. Remediation of severe learning and behavior problems in students through programming and behavior modification; use of automated equipment for direct control of stimuli and contingencies.

SPEECH THEATRE (SPTH)

500: Introduction to Graduate Studies in Theatre. 0-2-2. An introduction to research and writing as required for success within the graduate program of study in theatre.

501: Seminar. 0-3-3 (6). Preq., Permission of instructor. Individual problems and research in any of the following general areas of concentration: acting, directing, technical direction scene design, costume design, lighting design, properties design, stage management, arts management, playwriting, dramaturgy, dramatic studies, etc. Registration by permission of the instructor.

502: Studies in Scene Design. 0-3-3. Preq., SPTH 410 or consent of instructor. A seminar course in the theory, practice, and history of scene design for the theatre.

503: Studies in Lighting Design. 0-3-3. Preq., SPTH 403. A seminar course in the history, theory, and practice of lighting design for theatre, opera, dance, and other media.

509: Graduate Studies in Stage Management. 0-3-3. Preq., consent of instructor. A practical course in stage managing methodology culminating in the preparation of working prompt book, calling script, and bible of a commercially produced play.

511: Studies in Stage Costuming. 0-3-3. Preq., SPTH 410 or consent of instructor. A seminar course in the history, theory, and practice of design and construction of stage costumes.

515: Theatre Management. 0-3-3. Preq., SPTH 491. Study of theatre management concentrating on organization of business and administrative areas of theatre.

516: Arts Administration. 0-3-3. Study of arts administration concentrating on the theories and practices involved in the business aspects of theatre.

518: Interpretation of Contemporary Drama. 0-3-3. Preq., SPTH 436 or consent of instructor. A study of American and European drama from 1940 to the present.

531: Studies in Dramatic Literature. 0-3-3. A study of dramatic literature chosen from one of several dramatic eras and/or genres.

533: Theories of Performance. 4-2-3. Preq., SPTH 500 or consent of instructor. A seminar course examining the theories of theatricality and performativity through a wide variety of theatrical periods and genres.

536: Analysis and Criticism of Drama. 0-3-3. A seminar course in the theory of critical analysis of drama from Aristotle to the present.

540: Graduate Studies in Acting. 4-2-3. Preq., consent of instructor. A study of the practice of acting and performance, with the subjects of investigation to vary according to need. Practical application of material covered is required.

541: Graduate Acting Styles. 4-2-3. Preq., SPTH 540 or consent of instructor. An intense, practical study of a wide variety of acting styles. Practical application of material covered is required.

550: Graduate Studies in Directing. 4-2-3. Preq., consent of instructor. An advanced study of stage directing, focusing on research, analysis, style, and preparation. Practical application of material covered is required.

551: Graduate Directing Seminar. 4-2-3. Preq., consent of instructor. A seminar course in stage directing with the subjects of investigation to vary according to need. Practical application of material covered is required.

SPEECH (SPCH)

205: Introduction to Audiology. 0-3-3. Study of the auditory mechanism, physics of sound, basic hearing disorders, and their treatment.

206: Beginning Sign Language. 0-3-3. Introduction to manual communication, emphasizing fingerspelling, the vocabulary and structure of American Sign Language (ALS) used by the Deaf Community.

210: Introduction to Communicative Disorders. 0-3-3. A study of the various disorders of communication, their nature, etiology, and treatment.

222: Phonetics. 0-3-3. Principles of phonetics; articulatory phonetics; description and classification of sounds; transcription at different levels of detail; production and perception included.

301: Anatomy and Physiology of the Speech and Hearing Mechanism. 0-3-3. Functional anatomy and physiology of those structures associated with speech production and reception.

302: Introduction to Speech and Hearing Science. 0-3-3. Preq., SPCH 301. Comprehensive survey of the communicative process from the speaker to the listener, speech production, acoustics, and speech perception.

304: Intermediate Sign Language and Deaf Culture. 0-3-3. Preq., SPCH 206. Continuation of manual communication, emphasizing vocabulary and structure of American Sign Language (ASL). Emphasis on expressive and receptive skills. Selected readings on the Deaf Culture.

305: Evaluation of Hearing. 0-3-3. Preq., SPCH 205. This class will include the study of auditory pathologies and the evaluation procedures used in the differential diagnosis of hearing loss.

311: Neuroscience. 0-3-3. Preq., SPCH 301, 302, or Permission of Instructor. Introduction to functional neuroanatomy and neurophysiology in terms of motor control and assessment and diagnostic significance of lesions in the nervous system for speech-language functions.

312: Clinical Procedures. 7 1/2-2-4. Students are taught principles and procedures used with clients with speech disorders through lecture, observation and supervised clinical experience.

313: Introduction to Voice/Fluency. 0-3-3. Preq., SPCH 301, 302, or Permission of Instructor. Introduction to current and historical concepts of the nature and etiology of voice/fluency disorders, methodologies of assessment and treatment of children and adults.

390: Special Topics in the Science of Communication. 0-3-3. This course is concerned with developing advanced social scientific knowledge in speech communication areas such as Conflict & Negotiation Resolution, Persuasion, and Interpersonal Communication.

395: Special Topics in the Rhetoric of Communication. 0-3-3. This course is concerned with developing advanced knowledge in rhetorical analysis in areas such as Popular Culture, Visual Rhetoric, and American Rhetorical Traditions.

411: Diagnostic Procedures. 0-3-3. Preq., Minimum grade of C in SPCH 210, 222, 301, 302, 413, 418, 429, and 470. Principles and procedures for diagnosis of speech and language disorders. Administration and interpretation of standardized tests; clinical use of nonstandardized strategies.

413: Articulation. 0-3-3. Preq., SPCH 222. A study of the nature, etiology, and retraining procedures related to defective articulation with emphasis on current research.

417: Seminar in Speech Communication. (0-3-3). Selected current issues/topics in an identified area of theory or application within the field of Speech Communication.

418: Language Disorders in Children. 0-3-3. Preq., SPCH 470. A beginning course in the study of language disorders in children with emphasis on evaluation and treatment procedures.

421: Audiologic Observation. 2-0-2. This course is designed to provide the student with a "hands-on" experience under the supervision of a certified audiologist.

422: Special Topics in Audiology. 0-3-3. Preq., SPCH 205, 305, or consent of instructor. Selected topics in Audiology including amplification, industrial audiology, cochlear implants, aural rehabilitation, educational audiology, pediatric and geriatric considerations, and auditory processing disorders.

426: Counseling the Communicatively Impaired. 0-3-3. Preq., SPCH 413, 418, 470 or consent of instructor. Introduction to the counseling process and application to individuals who present with a variety of communicative disorders and to the families of these individuals.

429: Supervised Observation. 3-0-1. This course is designed to provide students with supervised observation of diagnostic and therapy sessions with clients who present speech, language and/or hearing disorders.

431: Organizational Communications. 0-3-3.Focuses on the factors related to communication processes within government, private, and volunteer organizations.

433: Applied Organizational Communication. (0-3-3). Application of communication practices in organizational settings including the practical considerations that arise in conducting communication surveys.

439: Rhetorical Criticism. 0-3-3. Rhetorical approaches to the criticism of public communication. Intensive practice in writing rhetorical analyses will be provided. **(G)**

447: Hearing Loss in Children and Adults. 0-3-3. Preq., SPCH 205 and Permission of Department Head. Disorders of the auditory system and their impact on communication in children and adults.

455: Communication Theory. (0-3-3). An examination and synthesis of theoretical approaches to contemporary communication theory with special emphasis on interpersonal contexts.

465: Applied Practicum. 6-0-2 (6). Practical experience in clinical activities related to service programs. May be repeated for a maximum of 6 hours credit. Registration by permission of instructor.

466: Group Processes. 0-3-3. Theory and practice of conducting group meetings, group discussions, to include parliamentary procedure.

470: Language and Speech Development. 0-3-3. Study of the normal acquisition and maintenance of speech and language; theoretical formulations about speech and language behavior, and approaches to its study. **(G)**

475: Speech-Language Pathology in the Public Schools. 0-3-3. A study of special education with discussion and application of materials and methods in the field of Speech-Language Pathology in the public schools.

500: Introduction to Research. 0-3-3. A course designed to introduce students to research applicable to speech and theories of measurement including statistical and behavioral designs, reliability and judgments.

501: Seminar. 0-3-3 (9). Preq., Permission of Instructor. Individual problems and research in any of the following general areas of concentration: speech communication; speech-language pathology, speech and hearing science, audiology, theatre arts.

503: Introduction to MS Excel and Statistics. 0-1-1. Preq., permission of instructor. Understanding and applying descriptive statistics, p-values, significance, correlation, etc. as these topics apply to research in the field. Use of computer-based statistic programs.

506: Language Disorders in Children: Birth – 5. 0-3-3. Preq., permission of instructor. Nature, etiology, assessment and management of communicative/social interactions in children birth to 5; emphasis on team approaches, culturally/linguistically diverse backgrounds, theoretical, evidence-based, and practical applications.

507: Dysphagia. 0-3-3. A study of the etiology, symptomatology, and anatomic/behavioral characteristics of dysphagia with an emphasis on principles and methods of diagnosis and treatment.

508: Practicum in Communicative Disorders. 1-3 hour(s) credit (18). Supervised clinical experience with individuals who have disorders of communication.

511: Language Disorders in Children: School Aged. 0-3-3. Preq., permission of instructor. Etiologies, characteristics, assessment, and intervention for language learning disabilities common in school-aged children, with emphasis on academic and cognitive aspects of language in classroom contexts.

513: Articulation Disorders. 0-3-3. Preq., permission of instructor. Study of current research in testing, prediction, and management procedures for articulation disorders.

514: Assistive Technology/Augmentative Communication for Speech-Language Pathologists and Audiologists. 1-3 hours credit (6). Preq., Permission of Department Head. An overview of assistive technology and augmentative communication devices, techniques for assessment and implementation, and funding issues. May be repeated for up to 6 semester hours credit.

519: Professional Issues in Speech-Language Pathology and Audiology. No Credit (Pass/Fail). Issues and professional responsibilities related to the professional practice of speech-language pathology and audiology.

522: Clinical Methods for Speech-Language Pathology and Audiology. 1-3 hours credit (6). Preq., Permission of Department Head. Methods of clinical practice for speech-language pathology and audiology. May be repeated for up to 6 semester hours credit.

523: Adult Language Disorders. 0-3-3. Preq., permission of instructor; Grade of C or better in SPCH 311 or comparable neuroscience course. A study of acquired language disorders associated with brain damage in adults with an emphasis on symptomatology, assessment, and diagnosis.

527: Advanced Diagnostic Procedures. 0-3-3. Preq., permission of instructor; Minimum grade of B in SPCH 513, 523, 529, 507, 528, 506, 511.A study of formal and informal assessment procedures applicable to speech/language disorders. Emphasis on the role of differential diagnosis, specialized test procedures, and referral procedures.

528: Motor Speech Disorders. 0-3-3. Preq., permission of instructor. A study of motor speech disorders that result from damage to the central and peripheral nervous systems, their etiologies, symptomatology, diagnoses, and management.

529: Management of Adult Language Disorders. 0-3-3. Preq., SPCH 523 and permission of instructor. Clinical management of acquired adult language disorders.

530: Special Problems in Communicative Disorders. 0-3-3. Registration by permission of instructor. Individual research assignments in speech pathology and audiology.

534: Qualitative Research Methods. 0-3-3. The use of observational and interviewing research techniques for studying human communication.

537: Seminar in Interpersonal Communication. 0-3-3. Interpersonal communication theory and research including topics concerning acquaintance, attitudes, language, nonverbal codes, and dyadic and small group communication patterns.

539: Seminar in Organizational Communication. 0-3-3. Topics include theories of organizational communication, consultation, research and field experience in organizations, communication in organizational settings, and communication styles in decision making.

546: Conference Course in Speech Communication. 0-3-3. Readings in the literature of speech communication designed to expand opportunities for individual consultation in research and in informational aspects of the students' work.

547: Internship. Advanced practicum in organizational communication in public, private and volunteer organizations.

550: Research Proposal. 1 hour credit. Preq., Permission of Thesis Director. The student interacts with the Thesis Director to develop a research objective for the thesis.

555: Externship in Speech-Language Pathology. 1-4 hour(s) credit (14). Preq., Permission of Department Head. Supervised clinical practicum in an off-campus university-affiliated hospital, private practice, or other. May be repeated for a maximum of 14 hours credit.

556: Aural Rehabilitation. 0-3-3. Rehabilitative procedures for hearing impaired children and adults including speech and language, psychosocial and educational deficits and management.

559: Special Topics. 1 - 3 hours credit (9). Preq., Permission of Faculty Member(s) Involved or Department Head. Selected topics in an identified area of speech and hearing science, audiology, or speech-language pathology.

560: Individual Readings in Audiology or Speech-Language Pathology. 1-3 hour(s) credit (6). Preq., Permission of Instructor. Directed independent study of literature in a pre-selected area of audiology or speech-language pathology.

561: Speech and Voice Science. 0-3-3. Preq., Permission of Instructor. Study of the physiologic and acoustic aspects of speech and voice including the use of instrumentation and management of speech and voice disorders.

562: Special Populations in Communication Disorders. 0-3-3. Preq., Permission of Instructor. A study of the identification and management of common speech, language, and hearing disorders with emphasis on fluency, craniofacial anomalies, autism and hearing disorders.

570: Language and Speech Development. 0-3-3. Study of the normal acquisition and maintenance of speech and language; theoretical formulations about speech and language behavior, and approaches to its study.

585: Comprehensive Examination in Speech-Language Pathology. No Credit. Preq., Permission of Comprehensive Examination Committee Chair and Graduate Standing. Required for students taking a comprehensive examination as part of their Plan of Study in the Masters of Arts programs in Speech-Language pathology. May be repeated only once. (Pass/Fail)

589: Directed Research in Audiology or Speech-Language Pathology. 1 – 3 hour(s) credit (6). Preq., Permission of Faculty Member(s) Involved or Thesis Director. Students pursue individual research projects; enrollment for three hours credit required for development and presentation of thesis prospectus to the Thesis Committee.

600: Introduction to Research. 0-3-3. Introduction to research principles and designs applicable to speech communication, speech-language pathology, and audiology.

601: Seminar. 0-3-3 (9). Preq., Permission of Instructor. Individual problems and research in any of the following general areas of concentration: speech communication, speech-language pathology, speech and hearing science, audiology, theatre arts.

602: Audiological Assessment I. 0-3-3. Administration and interpretation of basic audiometric procedures: pure tone air and bone conduction, speech audiometry, acoustic immitance; clinical masking procedures; history-taking; patient counseling.

609: Instrumentation and Calibration. 0-3-3. Methods, instruments, and standards used for measurement and calibration of audiometric signals. Review of safety considerations and guidelines.

610: Speech Science. 0-3-3. Study of normal speech and voice production with emphasis on the respiratory, articulatory, and phonatory mechanisms, and speech perception.

616: Hearing Disorders. 0-3-3. Disorders of the auditory system with medical correlates and multi-cultural aspects of auditory disorders.

617: Hearing Science. 0-3-3. Basic acoustics, sound propagation, decibels, waveform analysis, and filtering and distortion.

618: Anatomy and Physiology of the Auditory System. 0-3-3. Structures and function of the auditory system from the pinna to the cortex.

631: Audiological Assessment II. 0-3-3. Audiological procedures used in differential diagnosis and their contributions to accurate assessment of auditory disorders with emphasis on clinical decision analysis.

632: Introduction to Amplification. 0-3-3. Basic hearing aid components, their function and selection, and verification of benefit. Review of ear mold impression and modification methods.

636: Hearing Conservation. 0-3-3. The effects of noise on humans with measurement and management of noise in accordance with OSHA guidelines.

640: Implantable Devices in Audiology. 2-3 hours credit (3). Pre- and post-operative audiologic assessment/management of cochlear implants/hybrid devices, history, patient counseling/expectations, surgical procedures, mapping/electroacoustic programming, assistive devices, case studies, and current research.

641: Physiological Tests of Auditory Function. 0-3-3. The application of otoacoustic emissions and early auditory evoked potentials to the diagnosis of auditory system disorders. Emphasis on ABR and ASSR.

642: Auditory Processing Disorders. 0-3-3. Auditory processing disorders and the methods and procedures used in their identification and treatment.

643: Pediatric Audiology. 0-3-3. Established procedures and methods to identify disorders of the auditory system in children. Review of small- and large-scale screening procedures.

644: Advanced Objective Measures. 0-3-3. Advanced electrophysiological procedures (e.g., posturography, rotary chair, VEMPs, MLR, ALR, P300, MMN) for the diagnosis and treatment of individuals with vestibular and hearing disorders.

648: Psychoacoustics. 0-3-3. Facts and models related to auditory function and the relationships between measurable quantities of acoustic signals to hearing sensation.

649: Audiology Clinical Practicum. 1 – 3 hour(s) credit (18). Preq., Permission of Instructor. Participation in supervised, basic audiological evaluations, report writing, and other clinical activities leading to supervised auditory and vestibular evaluation, management, and treatment; assignments in primary program and outreach service sites.

650: Research Proposal. 1 hour credit. Preq., Permission of Dissertation Director. The student interacts with the Dissertation Director to develop a research objective for the dissertation.

651: Dissertation. 3 hours credit (15). (Pass/Fail). Preq., Permission of Dissertation Director. Registration in any quarter may be for three semester hours credit or multiples therof, up to a maximum of nine semester hours credit per quarter.

652: Professional Seminar in Audiology. 1 – 3 hour(s) credit (12). Preq., Permission of Instructor. Current and advanced topics relevant to professional issues in audiology and related fields.

653: Vestibular System Disorders. 0-3-3. Assessment, management, and treatment strategies for individuals with vestibular system disorders.

654: Rehabilitative Audiology. 0-3-3. Assessment, management, and treatment strategies for infants, children, and adults with hearing impairments. Implications of assessment for treatment and management using conventional and innovative strategies.

655: Clinical Residency in Audiology. 6 hours credit (24). Preq. Fourth year Doctoral Status and Permission of Department Head. Full-time supervised clinical residency in a university-affiliated hospital, private practice, or other appropriate agency or setting.

656: Aural Rehabilitation. 0-3-3. Rehabilitative procedures for hearing impaired children and adults including speech and language, psychosocial and educational deficits, and management.

657: Externship in Audiology. 1 – 4 hour(s) credit (18). Preq., Permission of Department Head. Supervised clinical practicum in an off-campus university-affiliated hospital, private practice, or other appropriate agency.

658: Seminar in Amplification. 0-3-3. Current and classic literature regarding acoustic amplification and its application to human communication.

659: Special Topics. 1 – 3 hour(s) credit (9). Preq., Permission of Faculty Member(s) Involved and/or Department Head. Selected topics in an identified area of speech and hearing science, audiology, or speech-language pathology.

660: Individual Readings in Audiology or Speech-Language Pathology. 1 – 3 hour(s) credit (6). Preq., Permission of Instructor. Directed independent study of literature in a pre-selected area of audiology or speech-language pathology.

661: Research Project. 3 hours credit (15). (Pass/Fail). Preq., Permission of Research Project Director. Registration in any quarter may be for a maximum of nine semester hours.

685: Comprehensive Examination in Audiology. No credit. Required for all Doctor of Audiology students before Clinical Residency begins. Successful completion of the written examination is a prerequisite to the oral comprehensive examination. (Pass/Fail)

686: Qualifying Examination in Audiology. No credit. Required for all Doctor of Audiology students before the 2nd year of study. Registration required in the quarter that the qualifying examination will be taken. (Pass/Fail)

689: Directed Research in Audiology. 1 – 3 hour(s) credit (6). Permission of Faculty Member(s) Involved or Dissertation Director. Students pursue individual research projects; enrollment for three hours credit required for development and presentation of dissertation prospectus to the Dissertation Committee.

STATISTICS (STAT)

200: Basic Statistics. 0-3-3. Preq., Mathematics ACT score is greater than or equal to 26, or Mathematics SAT score is greater than or equal to 590, or Placement by Exam, or MATH 101, or MATH 102. Sample statistics, frequencies, normal and binomial distributions, point and interval estimation, significance testing, linear regression. Master Course Articulation Matrix* [LCCN: CMAT 1303]

402: Introduction to Statistical Analysis. 0-3-3. Preq., MATH 101, junior standing and consent of the instructor; non-COES majors only. Understanding and applying: descriptive statistics, p-values, estimation, significance, regression, correlation. Use of packaged computer programs. **(G)**

405: Statistical Methods. 0-3-3. Preq., MATH 242,. Data description, discrete and continuous random variables, inferences about means and variances of populations, categorical data, regression, correlation, analysis of variance, computers in data analysis. **(G)** Credit will not be given for STAT 405 if credit is given for STAT 505.

505: Statistics for Engineering and Science. 0-3-3. Preq., MATH 242 or equivalent. Random variables and distributions, reliability, quality control, analysis of variance and regression, categorical data analysis, distribution-free methods, use of SAS in data analysis. Credit will not be given for STAT 505 if graduate credit is given for STAT 405.

506: Regression Analysis. 0-3-3. Preq., MATH 308, and STAT 520, or 620. Simple and multiple regression, inferences in regression, model formulation and diagnostics, analysis of covariance, nonlinear models, estimation and inference. Use of computers in data analysis.

507: Design and Analysis of Experiments. 0-3-3. Preq., STAT 506 or QA 625. Analysis of variance for factorial, randomized, incomplete block, repeated measures and split-plot designs, multiple comparisons, fixed, random, and mixed effect models. Use of SAS and/or R for data analysis.

510: Advanced Statistics For Quality Improvement. 0-3-3. Preq., STAT 521 or STAT 621. Least squares, fractional factorials, Taguchi's parameter design, performance criteria, second-order designs, fitting second-order models, exploration of response surfaces, optimization.

520: Theory of Probability. 0-3-3. Preq., MATH 244. Combinatorial analysis, joint and conditional probability, distribution theory, expectation properties, moment-generating functions, random variables, limit theorems, random walks. Credit will not be given for STAT 520 if credit is given for STAT 620 or STAT 505 or graduate credit is given for STAT 405.

521: Theory of Statistics. 0-3-3. Preq., STAT 520. Point estimation, interval estimation, statistical hypotheses, statistical tests, nonparametric inference, normal distribution theory. Credit will not be given for STAT 521 if credit is given for STAT 621.

550: Practicum in Statistical Consulting. 0-1-1 (3). Preq., STAT 506, or 507, or 510, or 625, or QA 625, or 635. Working with clients on statistical problems arising in research, such as modeling, design, data analysis and interpretation.

606: Linear Statistical Models. 0-3-3. Preq., STAT 506, or QA 625, and STAT 521. Generalized inverses, quadratic forms, Gauss-Markov theory, estimability, full rank models, non-full rank models, covariance analysis.

620: Theory of Probability. 0-3-3. Preq., MATH 244. Combinatorial analysis, joint and conditional probability, distribution theory, expectation properties, moment-generating functions, random variables, limit theorems, random walks. Credit will not be given for STAT 620 if credit is given for STAT 520 or STAT 505 or graduate credit is given for STAT 405.

621: Theory of Statistics. 0-3-3. Preq., STAT 620. Point estimation, interval estimation, statistical hypotheses, statistical tests, nonparametric inference, and normal distribution theory. Credit will not be given for STAT 621 if credit is given for STAT 521.

625: Multivariate Statistics. 0-3-3. Preq., STAT 506, or QA 625. Tests of hypotheses on means, multivariate analysis of variance, canonical correlation, principle components, factor analysis, computer applications.

630: Nonlinear Models. 0-3-3. Preq., STAT 506, or QA 625. Parameter estimation, tests of hypotheses, confidence intervals and regions, measures of curvature, use of computer algorithms.

650: Time Series Analysis. 0-3-3. Preq., STAT 521, or 621. Spectral analysis, least square filtering, parameter estimation, stationary random processes, ARIMA models, trend and seasonability.

651: Discrete Markov Processes. 0-3-3. Preq., STAT 521, or 621. Probability generating functions, Markov chains, renewal processes, Poisson processes, branching processes.

652: Stochastic Processes. 0-3-3. Preq., STAT 521, or 621. Birth-death processes, random walks, diffusion processes.

680: Topics in Statistics. 0-3-3 (9). May be repeated for 3 hours credit each time.

THEATRE (THTR)

100: Introduction to Theatre. 0-3-3. A comprehensive overview of the elements that comprise the theatre; intended as a basic preparation for an understanding of theatre art. Master Course Articulation Matrix* [LCCN: CTHE 1013]

101: Stagecraft. 4-2-3. Practical experience in scenery construction, painting, stage lighting, and organizational techniques. Master Course Articulation Matrix* [LCCN: CTHE 2303]

210: Beginning Acting. 4-2-3. Introduction to the art and craft of acting, with an emphasis upon physical, vocal, and analytical skills, as well as fundamentals of relaxation and performance. Master Course Articulation Matrix* [LCCN: CTHE 2103]

211: Acting Voice and Diction. 4-2-3. Introduction to the mechanics of vocal production and speech for the performer and the International Phonetic Alphabet, with an emphasis on use of the voice in acting. Master Course Articulation Matrix* [LCCN: CTHE 2203]

212: Advanced Scene Study. 4-2-3. Preq., THTR 210 or 211. Acting study with an emphasis on character development in scene work utilizing a variety of rehearsal methods and approaches.

220: Dance for the Theatre I. 3-1-1(2). To establish a level of skill in performing basic patterns and skills, and to develop methods for teaching such skills.

260: Theatre Practicum I. 4-0-1(4). A practical introduction to studio experience in the theatre in the areas of technical and management. (Pass/Fail)

290: Theatre Appreciation. 0-3-3. A study of Theatre and its different forms and how they affect our life and society. Master Course Articulation Matrix* [LCCN: CART 1013]

301: Seminar. 0-3-3(6). Preq., consent of instructor. Individual problems and research in any area of theatre studies.

305: Stagehouse Mechanics. 4-2-3. Practical and theoretical experience working with stage rigging, electrics, and sound.

308: Technical Direction. 4-2-3. Preq., THTR 101 and 305 or consent of instructor. Practical experience in advanced theories of stage technology, shop management, budgeting, cost effective solutions and construction practices.

309: Stage Management. 0-3-3. Preq., THTR 100 or consent of instructor. A study of the responsibilities, organization, and methods used in the operations of the manager in theatre.

310: Auditions and Careers. 4-2-3. Preq., THTR 210 or 211 or consent of instructor. A practical study in the theatrical auditioning process with an examination of pursuing career opportunities in acting.

311: Period Acting Styles. 4-2-3. Preq., THTR 212 or consent of instructor. A practical study of major period styles of acting, including English and French Renaissance, Realism, Expressionism, Absurdism, Post-Modernism and Musical Theatre.

312: Advanced Acting. 8-1-3. Preq., must have signature of instructor. Advanced acting class that explores the issues and complexities of fight direction in performance.

314: Design for the Theatre I. 4-2-3. Preq., THTR 305 or consent of instructor. A study of the theories of color, design, rendering, graphic techniques, and CAD design for the stage.

330: Beginning Directing. 3-3-3. Preq., THTR 100, 212, or 309. An introduction to directing with an emphasis on research, script analysis, staging, actor coaching, and integrating technical elements into production.

371: The Craft of Dramatic Writing. 0-3-3. An introduction to writing for the actor with emphasis on projects aimed at focusing on the structures of character, action, and dialogue.

380: Stage Dialects. 3-3-3. Preq., THTR 211 or consent of instructor. An advanced study of vocal production for actors, focusing on a wide variety of stage dialects, utilizing the work of Kristin Linklater and Jerry Blunt.

401: Seminar. 0-3-3(6). Individual problems and research in any area of theatre studies. **(G)**

403: Design for the Theatre II. 4-2-3. Preq., THTR 101 or consent of instructor. A study of the tangible elements of design for the stage, scene, costume, and properties. **(G)**

410: Design for the Theatre III. 4-2-3. Preq., THTR 403 and 314 or consent of instructor. A study of the intangible elements of design for the stage, lighting, and sound. **(G)**

415: Shakespeare. 0-3-3. The major plays and the poems. (Same as English 415.) **(G)**

420: Dance for the Theatre II. 3-1-1. To establish a level of skill in performing intermediate to advanced patterns and skills, and to develop methods for teaching such skills. **(G)**

434: History of the Theatre I. 0-3-3. Study of the theatre from ancient origins through the Renaissance. Focus on literature, production, style, performance, and historical context. **(G)**

435: History of the Theatre II. 0-3-3. Study of the theatre from the Restoration to Ibsen. Focus on literature, production, style, performance, and historical context. **(G)**

436: Contemporary Developments in Theatre. 0-3-3. A study of theatre development since Ibsen. This course will cover trends, movements, and genres in all areas of theatre. **(G)**

440: Advanced Directing. 3-3-3. Preq., THTR 330 or consent of instructor. A practical course in directing methodology culminating in the direction of a publicly performed short play. **(G)**

450: Stage Movement: Unarmed. 3-1-1. Preq., consent of instructor. Introduction to the falls, throws, rolls, scrappy fighting, martial, and unarmed techniques in performance. **(G)**

451: Stage Movement: Swashbuckling. 3-1-1. Preq., consent of instructor. A performance class in the theatrical for of sword play most commonly represented by the old film swashbucklers. **(G)**

452: Stage Movement: Broadsword. 3-1-1. Preq., consent of instructor. Theatrical broadsword generally encompasses the span of European history from the tenth century to the end of the fifteenth. **(G)**

453: Stage Movement: Double Fence. 3-1-1. Preq., must have signature of the instructor. Theatrical double fence swordplay from the sixteenth and seventeenth centuries. **(G)**

454: Stage Movement: Pole Arms. 3-1-1. Preq., must have signature of the instructor. Theatrical combat with the staff or pole-arm of the Middle Ages and Renaissance. **(G)**

455: Stage Movement: Smallsword and Knife. 3-1-1. Preq., must have signature of the instructor. A performance class in the theatrical form of knife or smallsword fighting for the stage. **(G)**

460: Theatre Practicum II. 4-0-1(3). Advanced practical studio experience in the theatre in the areas of technical and management. Pass/Fail. **(G)**

472: Advanced Dramatic Writing. 0-3-3 (6). Preq., THTR 371 or consent of instructor. Studies in the craft of dramatic writing with varying areas of concentration including research, adaptation, writing for the screen, stage, radio, video, etc. **(G)**

490: Arts Management. 0-3-3. An overview of arts management in the fields of performing and visual arts. Included are basic management principles, personal management, and organizational structures and procedures. **(G)**

491: Promotion. 2-3-3. Study of promotional theory that enables students to design, produce and evaluate promotional campaigns for fine arts institutions and events. **(G)**

UNIVERSITY SEMINAR (UNIV)

100: Orientation and Study Skills. 1 hour credit. Orients new students to the University and facilitates the identification and application of practical study techniques and attitudes associated with college success; identification of goals, time management and scheduling.

101: Academic Skills Enhancement. 1-3-3. Required if Reading ACT score is less than or equal to 17. Orients new students to the University environment and builds reading and study skills fundamentals, which are essential for success in higher education.

WILDLIFE HABITAT MANAGEMENT (WILD)

111: Introduction to Forest and Wildlife Management. 4-1-2. Survey of forest and wildlife habitat distribution, history, policies, management, and utilization.

230: Biology of Forest Plants. 0-3-3. Preq., BISC 101 or 130. The classification, structure, function, and basic physiological processes in principal forest plants.

231: Dendrology I. 4-0-1. Preq., BISC 130 or 216, or FOR 230, or WILD 230. The identification of woody plant species found in north central Louisiana using leaves, twigs, buds, fruit, flowers, and form.

232: Dendrology II. 4-0-1. Preq., FOR 231 or WIlD 231. A continuation of Dendrology I with the identification of woody plant species found in north central Louisiana using leaves, twigs, buds, fruit, flowers, and form.

233: Forest Trees of North America. 4-0-1. Plant classification, nomenclature, and silvics of important tree species native of North America.

314: Wildlife Habitat Evaluation and Management. 4-2-3. Habitat requirements, evaluation, and management for wildlife.

347: Wildlife Techniques. 4-2-3. Techniques used in the management of wildlife and their habitat, including capture, identification, and population estimation.

428: Wetland Ecology. 4-2-3. Preq., FOR 301 or BISC 313 or ENSC 313 or equivalent. Study of wetland characteristics and the ecological processes occurring within wetlands. Wetland delineation, restoration, construction and regulation will also be covered. Cannot be taken for credit if student has credit for FOR 428.

445: Forest Ecosystem Management. 4-2-3. Forest ecosystems of the South, their history, function, components, protection, and management. **(G)**

456: Senior Exit Exam:. 4-0-1. Preq., WILD 445. Comprehensive review of Wildlife Habitat Management program course content prior to final comprehensive examination.

480: Professional Practice. 9-0-3. Preq., WILD 445. Integrated formulation, calculation, execution, and implementation of multiple-use forest resource management plans incorporating ethical, biological, quantitative, economic, social, and administrative constraints.

PART V – COUNCILS, COMMITTEES, COMMISSIONS

The President and the appropriate Vice President are 'ex-officio' members of all councils and committees.

ADMINISTRATIVE AND PLANNING COUNCIL. Purpose: Serves as the comprehensive review, assessment, and planning Council for Louisiana Tech University. The Council is chaired by the President, and the membership includes administrators representing all areas of the University. Members: Les Guice (Chair), Terry McConathy, Stan Napper, Jim King, Corre Stegall, Lisa Cole, Sam Wallace, Rita Franks, Hisham Hegab, Donald Kaczvinsky, Gary Kennedy, Christopher Martin, Don Schillinger, Sheryl Shoemaker, Dickie Crawford, Pamela Ford, Tommy McClelland, Dave Guerin, Dave Norris, University Senate President, SGA President, Carrie Flournoy (ex-officio), and Ryan Richard (ex-officio).

ADMINISTRATIVE REVIEW BOARD. Purpose: Hears only appeals from recommendations of the Behavioral Standards Committee, and is vested with appellate jurisdiction only. Members: Vice President for Student Advancement (Chair), Vice President for Academic Affairs, and Dean of the College in which the student is registered.

AESTHETICS COMMITTEE. Purpose: To review proposed campus projects and make recommendations to the President as to the aesthetic merit of the proposed project and its conformity to standards of tradition and appearance of the campus. Members: Ryan Richard (Chair), Carrie Flournoy, Dave Guerin, Jim King, Corre Stegall, and Sam Wallace.

AMERICANS WITH DISABILITIES ACT (ADA) COUNCIL. Purpose: Established to review issues relative to compliance with the Rehabilitation Act of 1973 and the Americans with Disabilities Act, to forward recommendations to the appropriate administrative level, and to serve as a grievance review board for appeals. Members: Coordinator, Special Programs (Chair); Assistant Dean, Student Development; Coordinator, Testing and Disability Services; Director, Counseling and Career Services; and representatives from Academic Affairs, Admissions, Human Resources, Residential Life, SGA, Campus Engineering, Behavioral Sciences, Center for Biomedical Engineering and Rehabilitative Services.

ARCHIVES AND MUSEUM COMMITTEE. Purpose: Establishes policies and guidelines for the operation of the Archives and Museum and assists the Director of Archives with acquisitions and publicity matters. Members: Peggy Carter (Chair), Amy Yates, and Gary Zumwalt.

ASTRONOMY ADVISORY COMMITTEE. Purpose: Oversees astronomical observing activities and serves in an advisory role to the planetarium at Louisiana Tech University. The Committee arranges star parties and observation of interesting astronomical events such as eclipses and comets, and is available to serve as a source of information. Also aids in improving the equipment at the planetarium. Members: William Deese, and Lee Sawyer (ex-officio).

ATHLETICS COUNCIL. Purpose: Reviews intercollegiate athletic programs and activities and makes recommendations to the President for his consideration. Athletics Council members are appointed by the President. Members: Donna Thomas (Chair), Lisa Cole, Steve Davison, Sean Dwyer, Marvin Green, Guthrie Jarrell, Gary Kennedy, Terry McConathy, Judith Roberts, Sam Speed, Heath Tims, SGA representative, Mary Kay Hungate (non-voting), and Thomas McClelland II (non-voting).

BEHAVIORAL STANDARDS COMMITTEE. Purpose: Serves as the disciplinary agent of the University in cases referred to it by the Vice President for Student Advancement or his representative. The Committee has appellate jurisdiction by a student from an adverse decision of the Vice President for Student Advancement which directly affects the complainant in his individual capacity. Members: The Committee members shall be selected from a roster composed from the following: twelve faculty members appointed by the Vice President for Academic Affairs; twelve staff members appointed by the Vice President for Student Advancement, six SGA upperclassmen and six underclassmen appointed by the President of the University, and four chairpersons appointed by the Vice President for Student Advancement. Four rotating committees, composed of faculty, staff, students and a chairperson, meet to hear discipline cases involving students.

BIOSAFETY AND RADIONUCLIDES INSTITUTIONAL REVIEW COMMITTEE. Purpose: Ensures that all hazards associated with teaching and research are identified, monitored, and controlled. Members: Don Braswell (Chair), Danny Eddy, William Green, Dick Greenwood, Ed Griswold, Patrick Hindmarsh, Melissa Hughes, Thomas Larry, David Mills, Patrick O'Neal, Bala Ramachandran, Neven Simicevic, and James Spaulding

CAMPUS COMPUTING SERVICES COORDINATING COMMITTEE. Purpose: Assess the campus needs for computing services and assign priorities to those needs. Members: (Chair), Jim King, Bala Ramachandran, Sam Wallace, and Roy Waters.

COMMENCEMENT COMMITTEE. Purpose: Reviews activities associated with the graduation ceremony and make appropriate recommendations to the President. Members: Bob Vento (Chair), William Deese, Marilyn Robinson, Jim Robken, Corre Stegall, and Adam McGuirt.

CONTRACT REVIEW COMMITTEE. Purpose: Reviews all contracts between a state university and a member of its faculty or a company in which faculty members have an ownership interest under specified circumstances, and certify to the Board of Regents, semiannually, that entering into the contract will contribute to economic development of the state and serve the public interest. Members: Les Guice (Chair), Courtney Hilton, Rich Kordal, and Lisa Cole.

COUNCIL OF ACADEMIC DEANS. Purpose: Coordinates academic programs and policies for the University. The Council considers actions taken by the Instructional Policies Committee and the Graduate Council. Recommendations of the Council of Academic Deans are forwarded to the President for consideration and final approval. Members: Vice President for Academic Affairs (Chair), Deans of each academic college, Dean of the Graduate School, Dean of Enrollment Management, Dean of Library Services, and University Registrar.

ENROLLMENT MANAGEMENT COUNCIL. Purpose: Monitors, evaluates, and makes recommendations on matters related to recruiting and retention of undergraduate students. Members: Dean of Enrollment Management (Chair), Associate Deans for Undergraduate Studies, Student Success Specialists from College of Business and Engineering and Science, Associate Registrar/NCAA Academic Compliance,

Associate Registrar/Records & Registration, Computing Center representative, Comptroller's Office representative (Bursar) Dean of Student Life/Auxiliary Services, Director of Financial Aid, Director of Undergraduate Admissions, Director of International Student and Scholar Services, and a student representative.

The RETENTION COMMITTEE is a subcommittee of ENROLLMENT MANAGEMENT COUNCIL and consists of all of the Enrollment Management Council members plus the following additional members: College of Education representative, Director of the Career Center, Department of Mathematics representative, General Studies representative, and representatives from the various departments in the Bulldog Achievement Resource Center.

The ACADEMIC RENEWAL COMMITTEE is a subcommittee of the ENROLLMENT MANAGEMENT COUNCIL. Members: Joan Edinger (Chair), Pamela Ford, Donna Hood, Bob Vento, and the Associate Dean for Undergraduate Studies, College of Engineering and Science.

The DEVELOPMENTAL SUSPENSION APPEALS COMMITTEE is a subcommittee of the ENROLLMENT MANAGEMENT COUNCIL. Members: Stacy Gilbert (Chair), Joan Edinger, Melanie Peel, and the Associate Deans for Undergraduate Studies.

The EMERGENCY RESPONSE TEAM. Purpose: Provides important information in the event of an emergency or natural disaster that occurs within Louisiana Tech University or the general area and impacts normal university operations. The team works to anticipate emergencies and helps to initiate the appropriate response. Members: Les Guice, Don Braswell, Ron Cathey, Dickie Crawford, Bill Davis, Carrie Flournoy, Dave Guerin, Randal Hermes, Case Ingram, Jim King, Joe Peel, Sam Speed, Bob Vento, Sam Wallace, and Roy Waters.

EQUIPMENT DONATIONS COMMITTEE. Purpose: Reviews all proposed equipment donations to any part of the University (including the Foundation). Members: (Chair), Debbie Forney and Jim King.

FEE COMMITTEE. Purpose: Serves to review proposals regarding University fees and to make recommendations regarding fees to the President and the University of Louisiana System, as appropriate. Members: Vice President for Academic Affairs; Vice President for Student Advancement; Vice President for University Advancement; Vice President for Research and Development; Assistant Vice President for Finance; Assistant Vice President for Administration & Facilities; University Senate representative; and SGA President.

FINANCIAL PLANNING TASK FORCE. Purpose: Advisory group to the President and to the Administrative and Planning Council on budget matters and budget priority funding. Members: President Les Guice, Vice President Terry McConathy, Vice President Jim King, Vice President Corre Stegall, Vice President Stanley Napper, Assistant Vice President Lisa Cole, Assistant Vice President Sam Wallace, SGA President, University Senate President, and Carrie Flournoy.

GENERAL EDUCATION REQUIREMENTS COMMITTEE. Purpose: Assess the effectiveness of the General Education Requirements as mandated by the Board of Regents and to forward recommendations relative to Tech's General Education Requirements as appropriate. Members: Jeffery Hankins (Chair), Dawn Basinger, Jenna Carpenter, Marcia Dickerson, and Janet Pope.

GRADUATE COUNCIL. Purpose: Reviews and recommends proposals for graduate courses and curricula, and may initiate or consider recommendations concerning instructional policies of the Graduate School. Members: Sheryl Shoemaker (Chair), Bruce Alford, William Campbell, John Harrison, Teresa Murray, Jim Palmer, Monte Parker, Janet Pope, Boris Teske, Steve Webre, Saul Zalesch, SGA Representative, Marilyn Robinson (ex-officio), and Bob Vento (ex-officio)

GRIEVANCE COMMITTEE. Purpose: Provides for an independent body to consider the grievances of faculty and other unclassified personnel. This committee is composed of nine selected/elected members and a chairperson (non-voting) appointed by the President of Louisiana Tech University. The Executive Committee of the University Senate shall select six faculty members (one from each College and one from a designated College on a rotating three-year basis) to serve on the University Grievance Committee. The divisions of Louisiana Tech University (Academic Affairs, Research and Development, Finance and Administration, Student Affairs, and University Advancement) shall be represented by three elected representatives to the University Grievance Committee. Only unclassified staff personnel may be elected to represent the divisions. Members: Joe Pullis (Chair), Bruce Alford, Charles Cicciarella, Donna Hood, and Kim Theodos.

HEALTH SCIENCE ADVISORY COMMITTEE. Purpose: Addresses collective issues relating to health care education and serves in an advisory capacity to the Vice President for Academic Affairs. Members: Dean of Applied & Natural Sciences (Chair), Representatives of the Departments of Agricultural Sciences, Biological Sciences, Biomedical Engineering, Chemistry, Kinesiology, Health Informatics and Information Management; Directors of programs in Nursing, Nutrition and Dietetics, and Speech-Language Pathology and Audiology.

INSTITUTIONAL REVIEW BOARD - HUMAN USE COMMITTEE. Purpose: Ensures that the University follows the regulations for the protection of human research subjects as set forth by the Department of Health and Human Services. All research projects involving human subjects, both sponsored and non-sponsored projects, must be reviewed and approved by the Institutional Review Board for Use of Human Research Subjects before the research project is initiated as well as periodically during the conduct of the research project. Members: Mary Livingston (Chair), Bruce Alford, Nancy Bergeron, Ed Griswold, Stan Napper, Lisa Maxedon, Heather McCollum, Virginia Pennington, Gary Stokley, Latoya Pierce, and Mike Shipp.

INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE. Purpose: Oversees the welfare of any animals used in experimental research, their care and facilities, as directed by the U. S. Department of Agriculture and the National Institutes of Health. Members: James Spaulding (Chair), Don Braswell, William Green, Steven Jones, Yuri Voziyanov, William Wolf, Stan Napper (ex officio) and one community representative.

INSTRUCTIONAL INNOVATION COMMITTEE. Purpose: Established in 1995 with the responsibility to enhance communications among faculty about campus instructional technology capabilities and about experimentation with instructional techniques and to schedule development programs to meet identified needs of the faculty. Members: Stephen Webre (Chair), David Cargill, Bill Deese, Marcia Dickerson, David Hall, and Jeffrey Walczyk.

INSTRUCTIONAL POLICIES COMMITTEE. Purpose: Considers problems of college life in the areas of courses, curricula, and

instruction in undergraduate studies. Also, serves as an instrument of control to avoid course duplication and proliferation. Members: Chairperson elected each September. Two representatives from each academic college, one representative from the library and TECH-Barksdale, a student representative from the SGA, and the University Registrar (ex-officio).

INSURANCE AND RELATED BENEFITS COMMITTEE. Purpose: Periodically reviews and makes recommendations to the President regarding new benefit programs and changes to existing plans in order to keep the University's fringe benefit program competitive. This Committee is designated as the plan administrator for the University's Cafeteria (Section 125) Plan. Members: Sheila Trammel (Chair), Lisa Cole and Sam Wallace.

I**NTELLECTUAL PROPERTY COMMITTEE. Purpose: Oversight of intellectual property, policies, and procedures for the University. Members:** Rich Kordal (Chair), Niel Crews, Leon Iasemidis, Gary Kennedy, Bill McCumber, Jennifer Riley, and a student representative.

INTERNATIONAL EDUCATION COMMITTEE. Purpose: To promote greater understanding and appreciation of other cultures. Members: (Chair), Dan Erickson, Jeffery Hankins. Jeremy Mhire, Bogdan Strimbu, Jerry Tobacyk, and an SGA representative.

PARKING AND TRAFFIC COMMITTEE. Purpose: Responsible for the establishment and annual review of the parking and traffic regulations as set forth in the University "Vehicle Regulations Manual." This committee is also charged with reviewing appeals, proposals, and recommendations submitted by members of the University community pertaining to parking and traffic concerns. Members: Vice President for Student Advancement or his designee (Chair), Chief of University Police, representative from Division of Student Affairs, representative from the Physical Plant, one representative from each of the five academic colleges, two members of the Student Government Association appointed by the SGA President, and one student Housing Representative and a University Senate representative.

PREMEDICAL/PREDENTAL ADVISORY COMMITTEE. Purpose: Advises Premedical and Predental students, conducts personal interviews of applicants to medical and dental school and prepares recommendations for these applicants. Members: William Wolf (Chair), Marilyn Cox, Sven Eklund, Rebecca Giorno-McConnel, Bryant Hollins, Michelle Jimmerson, Steven Jones, Paul Ramsey, D'eane Sheehan, Jeffry Shultz, and J. Nicole Webb.

RECRUITMENT AND RETENTION COUNCIL. Purpose: researches and develops plans to enhance quality and efficiency of recruitment and retention initiatives across the University. Members: Dean, Student Development (Chair); Academic Associate Deans for Undergraduate Studies; Sophomore Class President; Dean, Enrollment Management; Director, Co-Curricular Programs; Representatives from other disciplines as determined by Strategic Planning Council.

RESEARCH COUNCIL. Purpose: Coordinates the research activities of the University, strengthens interdisciplinary and inter-institutional research, serves as a vehicle for discussion of problems involving the administration of research projects and grants, recommends to the University administration policies concerning research and other sponsored programs, and fosters, stimulates, and advances the research effort of the University. Members: Stan Napper (Chair), Melinda Bryan, William Campbell, Kevin Cuccie, John Francis, Mark Gibson, Dick Greenwood, Jamie Hancock, John Harrison, Courtney Hilton, Tony Inman, Lindsey Keith-Vincent, Bala Ramachandran, Bonita Smith, Steve Webre, and Beth Free (ex officio).

SPACE UTILIZATION COMMITTEE. Purpose: Ensures that all campus space is usable by all members of the campus community who can justify its use in total consideration of the nature of the space. Members: Vice President for Academic Affairs, Vice President for Student Advancement, Vice President for Research and Development, Assistant Vice President for Finance, and Assistant Vice President for Administration and Facilities.

STRATEGIC PLANNING COMMITTEE. Members: Terry McConathy (Chair), Les Guice, Pamela Ford, Donald Kaczvinsky, Jim King, Rich Kordal, Stan Napper, Corre Stegall, Tommy McClelland, University Senate President, and SGA President.

STUDENT ORGANIZATIONS COMMITTEE. Purpose: Serves as the governing committee for all matters involving student organizations. Members: Director of Student Development (Chair), Faculty/Staff member appointed by the Vice President for Student Advancement, University Senate Representative, Interfraternity Council President, Panhellenic President, SGA President, Chief of University Police, IFC Advisor, Panhellenic Advisor, Coordinator of Multicultural Affairs, and Union Board President.

STUDENT SELF-ASSESSED FEES OVERSIGHT COMMITTEE. Purpose: Monitors and evaluates the need for student self-assessed fees. Members: One student representing the SGA, one student representing the Union Board, one student representing KLPI, one student representing Multicultural Affairs, one graduate student representing Housing Operations, two faculty members appointed by the President, one staff person representing the Assistant Vice President for Finance, one staff person representing the Assistant Vice President for Administration & Facilities, two staff persons representing the Vice President for Student Advancement, two ex-officio members, and Chief Business Affairs officer and Chief Student Affairs officer.

STUDENT TECHNOLOGY FEE BOARD. Purpose: Serves as the final recommending body for expenditures from the Student Technology Fee. Members: President Leslie K. Guice (Chair), SGA President, SGA Vice-President, Senior Class President, Junior Class President, Sophomore Class President, Freshman Class President, Lisa Cole, Terry McConathy, Roy Waters, Jim King (ex officio), Carrie Flournoy (ex-officio), and Kim Barlow (ex officio).

THREAT ASSESSMENT TEAM. Purpose: Serves as a central network and clearinghouse for identification and early intervention of students exhibiting indications of extreme distress or those engaging in harmful or disruptive behaviors. Members: Dickie Crawford (Chair), Tara Haskins, Randal Hermes, and Jim King.

TRADITIONS COMMITTEE. Purpose: Defines the traditions of Louisiana Tech University and enhances the culture of the University. Members: SGA President (Chair) Richard Crawford, Corre Stegall, Union Board President, University Senate Representative, Library Representative, and Athletic Department Representative.

UNIVERSITY ASSESSMENT COMMITTEE. Purpose: To review unit reports and develop a summary report and feedback for the ADMINISTRATIVE PLANNING COUNCIL. Members: Terry McConathy (Chair), 2 representatives from each college; 2 representatives

each from VP Academic Affairs, VP Student Affairs, AVP Finance, and AVP Administration.

UNIVERSITY BRANDING AND LICENSING COMMITTEE. Purpose: To support and advise the Department of University Communications in matters related to the licensing, merchandising, and reproduction of official Louisiana Tech visual marks (i.e. logos, institutional and athletics team names/references, photographic and video images, etc.). Members: Dave Guerin (Chair), Elena Parker, Jim King, Marco Born, Jay Luksis, Nate Warren, CLC representatives.

UNIVERSITY CATALOG COMMITTEE. Purpose: Charged with the responsibility to review the catalog to insure accuracy of approved policies and procedures prior to printing. Members: Bob Vento (Chair), Kim Barlow, Dawn Basinger, Aimee Baxter, William Campbell, Joshua Chovanec, Richard Crawford, Joan Edinger, Pamela Ford, Stacy Gilbert, Richard Harrison, Jim Palmer, Janet Pope, Marilyn Robinson, Sheryl Shoemaker, Lori Theis, Steve Webre, and a Student Representative.

UNIVERSITY COMMUNICATIONS COMMITTEE. Purpose: To provide effective and efficient communications to external audiences, as it pertains to public/media relations functions, information dissemination, and the marketing of the University. The Committee will act as a catalyst for developing a campus-wide communications network to ensure the consistency and accuracy of information being distributed by the University and its internal units. The Committee will present all consequential recommendations and proposed actions impacting the University to the President for consideration. Members: Dave Guerin (Chair), Carrie Flournoy, Pamela Ford, Tommy McClelland, Reggie Owens, Janet Pope, Dorothy Robbins, Don Schillinger, Corre Stegall, University Senate President, and SGA President.

UNIVERSITY COMPUTING POLICY AND PLANNING COUNCIL. Purpose: Makes final decisions concerning the allocation of computer related resources for the University. Members: Les Guice (Chair), Jim King, Terry McConathy, Stan Napper, Lisa Cole, and Sam Wallace.

UNIVERSITY HONOR COUNCIL. Purpose: Provides due process in cases involving violations of the Louisiana Tech University Honor Code. Members: Three faculty members appointed by the Vice President for Academic Affairs; one staff member appointed by the Vice President for Student Advancement; five students with three being upper-class undergraduates appointed by the SGA President, and 2 graduate students appointed by the Dean of the Graduate School; and one faculty chairperson appointed by the Vice President for Academic Affairs.

UNIVERSITY LIBRARY ADVISORY COMMITTEE. Purpose: Studies library needs in view of the academic program and advises the Director of Libraries on matters of general library policy, the development of library resources, and upon means which may integrate the library program with other academic activities of the University. The Committee serves as a liaison group between the faculty and the Library. Members:, Nancy Darland, Laura Flurry, Rita Franks, Daphne Jewell, Mary Livingston, Mike Luehlfing, Taylor Mack, Teresa Murray, Balachandran Ramachandran, Boris Teske, Amy Vessel, Steve Webre, one undergraduate student and one graduate student.

UNIVERSITY REACCREDITATION LEADERSHIP TEAM. Purpose: Assessment and self-study leadership panel for reaccreditation with the Southern Association of Colleges and Schools, Commission on Colleges (SACSCOC). Members: President Leslie K. Guice (Chair), Terry M. McConathy, Sheryl S. Shoemaker (SACSCOC Accreditation Liaison), Carrie M. Flournoy (Executive Assistant & Title IX & Compliance Coordinator).

UNIVERSITY SAFETY COMMITTEE. Purpose: Reviews and recommends the adoption of University safety standards. The Committee works through safety representatives to inform departments of new procedures and to assist in the implementation of safety regulations. Members: Environmental Safety Officer (Chair), Director of Nuclear Center, Director of Physical Plant, Director of Human Resources, Department Head of Chemistry, Director of the School of Biological Sciences, Director of University Housing, Chief of University Police, and Director of the Division of Nursing.

UNIVERSITY SENATE. Purpose: Promotes the general welfare of the University; discusses and expresses views on matters of general concern to the faculty; effectively communicates between the faculty and the administration; initiates policy proposals; makes recommendations on policy proposals submitted to it by the administrative officials of the University; and requests, through appropriate channels, from the administrative officials of the University, information which might influence policies and recommendations of the Senate. Members: The membership includes elected representatives from the Faculty who are employed full time and professional personnel engaged in Specialized Academic Services. Members shall serve for a term of three years.

UNIVERSITY SEXUAL HARASSMENT COMMITTEE. Purpose: Hears and considers testimony and other relevant evidence to make findings of fact, to determine whether the University's policy on sexual harassment has been violated, and if so to recommend appropriate relief and disciplinary action(s). Members: James M. King (Chair), Jeanette Futrell, Reggie Owens, Paige Pickett, Devery Rowland, Tilman Sheets, Sam Wallace, Amy Yates, and Carrie Flournoy (ex officio).

UNIVERSITY TENURED FACULTY COMMITTEE. Purpose: Provides due process in cases involving action taken by the University which could result in the discharge, termination of contract, or demotion in rank of a tenured faculty member. Members: Jerome Tobacyk (Chair), Jeffery Hankins, Donna Hood, Tony Inman, University Senate President, and University Senate Vice President.

UNIVERSITY TOUR COMMITTEE. Purpose: Ensures that any tour recommended by the University falls within the mission of the University, that is, teaching, research and public service. Members: Don Kaczvinsky (Chair), Dan Erickson, Lisa Cole, Sam Wallace, and SGA President.

UNIVERSITY VIOLENCE FREE WORKPLACE COMMITTEE. Purpose: Developing and maintaining a comprehensive plan to ensure that the campus workplace is free of violence. Members: Sheila Trammel (Chair), Don Braswell, Ron Cathey, Jeanette Futrell, Randal Hermes.

UNIVERSITY WEB COMMITTEE. Purpose: Provides guidelines for the maintenance of the Louisiana Tech web site and makes web-related technology recommendations. Members: Tom Soto (Chair),Kim Barlow, Dawn Basinger, Aimee Baxter, Mark Coleman, Donny Crowe, David Deal, Dan Erickson, Pamela Ford, Bryan Fuller, Dave Guerin, Janet Pope, Elena Parker, Marilyn Robinson, Danny Schales, Sam Speed, John Swart, Sam Wallace, and Chris Womack.

PART VI – UNIVERSITY FACULTY AND ADMINISTRATORS

Board of Regents Support Fund Endowed Faculty

Louisiana Board of Regents Support Fund Endowed Chairs

The goal of the Endowed Chairs Program is to assist colleges and universities primarily in attracting but also in retaining eminent scholars who will contribute significantly to the enhancement of the overall infrastructure of higher education in Louisiana. This Program is highly leveraged by its requirement of a three-to-one private-sector match: at least $600,000 in private-sector funds is a prerequisite to receiving Support Fund matching funds of $400,000, maximum. Louisiana Tech has received donor gifts and matching funds from the Board of Regents Support Fund to establish fourteen $1 million endowed chairs. Faculty appointed as endowed chairs must have a national/international reputation in the discipline, a record of prominent leadership roles in the profession, outstanding publication record, a record of external research or recognition for innovation in teaching and development of grants and awards; and/or an acclaimed performance and creative portfolio, as appropriate to the chair. The Board of Regents Support Fund Eminent Scholar Chairs and current faculty recipients listed in order of establishment are as follows:

T. L. James Eminent Scholar Chair – Civil Engineering – Dr. Erez Allouche
Pipes Eminent Scholar Chair – Micro and Nanosystems Engineering – Dr. Yuri Lvov
Harold J. Smolinski Eminent Scholar Chair – Accounting –
Elva J. Mann Eminent Scholar Chair – Human Ecology –
F. J. Taylor Eminent Scholar Chair – Journalism – Dr. Reginald Owens
Eminent Scholar Chair in Construction – Dr. Tom Iseley
Max P. & Robbie L. Watson Eminent Scholar Chair – Biomedical Engineering –
George E. Pankey Chair – English – Dr. Don Kaczvinsky
Humana Foundation/McCallister Chair in Information Systems –
John E. Barnes Eminent Scholar Chair in Finance -
Herman A. "Dusty" Rhodes Eminent Super Chair in Engineering – Dr. Leonidas D. Iassemidis
Eunice C. Williamson Endowed Chair in Language & Literature -
Virginia S. Thompson Endowed Chair in Finance –
Lucius D. McGehee Endowed Chair in Entrepreneurship -

Louisiana Board of Regents Support Fund Endowed Professorships

Endowed Professorships are established for the purpose of providing an annual funding source to enhance program and faculty development. Holders of the professorships should be of such quality and professional stature as to provide excellence in program leadership and bring national and international recognition to the University. Louisiana Tech has received donor gifts and matching funds from the Board of Regents Support Fund to establish more 143 endowed professorships. The Board of Regents Support Fund Endowed Professorships and current faculty recipients listed in order of establishment are as follows:

Adelaide Murdoch Hunt Endowed Professorship in Human Ecology – Dr. Katherine Anguah
Agriculture Endowed Professorship in the Department of Agricultural Sciences – Dr. Mark Murphey
AT&T (Bell South/South Central Bell) Endowed Professorship in Electrical Engineering – Dr. Rastko Selmic
Balsley-Whitmore Endowed Professorship in the College of Business #1 – Dr. Julie Moulard
Balsley-Whitmore Endowed Professorship in the College of Business #2 – Dr. T. Selwyn Ellis
Bank of Ruston Endowed Professorship in the College of Business – Dr. Ray Anthony Inman
Bank of Ruston—Barnes, Thompson, and Thurmon Endowed Professorship for the College of Business --
Bobby E. Price Endowed Professorship in Civil Engineering – Dr. Jay Wang
Bobby J. & Laura B. Neill Endowed Professorship in Forestry – Dr. Gordon Holley
Burton Risinger #1 Endowed Professorship in the College of Business – Dr. Douglas A. Amyx
Burton Risinger #2 Endowed Professorship in the College of Business – Carol Shaver
Cajun Contractors Endowed Professorship in Engineering – Dr. Heath Tims
Century Telephone Enterprises Endowed Professorship in the College of Engineering & Science – Dr. Collin Wick
Century Telephone Enterprises, Inc./Clark M. Williams Memorial Endowed Professorship in the College of Business – Dr. Otis Gilley
Charles & Nelwyn Spruell Endowed Professorship in Engineering – Dr. Lee Sawyer
Charles Emmett Leggett Professorship in Agriculture – Dr. Laura Gentry
Charles L. Farrar Endowed Professorship in the College of Business – Dr. Jinyoung Wynn
Charlotte Lewis Professorship in English – Dr. Dorothy Robbins
Charlyne Smith Wyche Professorship in English – Dr. Celia M. Lewis
Chase Bank Endowed Professorship in Education – Dr. Don Schillinger
Chase Bank Endowed Professorship in the College of Business –
Chase Bank Endowed Professorship in Finance in the College of Business – Dr. Ali Darrat
Chase Bank Professorship in the College of Business –
Chester Ellis Professorship in Education –
Clarece Harp Lyles Endowed Professorship in Ceramic Arts – Kyle Triplett
Clifford Ray King Endowed Professorship in the College of Business –
College of Education Endowed Professorship – Dr. Tilman L. Sheets
Contractors Trust Professorship in Engineering #1 - Dr. Norm Pumphrey
Contractor's Trust Professorship in Engineering #2– Dr. Don Liu
Cunningham Interior Design Professorship – Marla St. John
D. Wayne Parker Endowed Professorship in Business -
Dr. Harvye Lewis Professorship in Human Ecology – Dr. Kathleen Heiden
Dr. Walter Koss Professorship in Math – Dr. Katie Evans
Edmondson/Crump Endowed Professorship in Engineering – Dr. Teresa Murray
Edward L. Moyers Endowed Professorship in the College of Business – Dr. Bruce Walters
Elizabeth N. Larson, Clarence N. Larson, & Andrew M. Larson Professorship in Social Sciences –Dr. Christobel Asiedu
Elizabeth Nobles Larson, Clarence N. Larson, and Andrew M. Larson Professorship #1 in the College of Engineering & Science –Dr. Pedro Derosa
Elizabeth Nobles Larson, Clarence N. Larson, and Andrew M. Larson Professorship #2 in the College of Engineering & Science – Dr. Michael O'Neal
Elva Leggett Smith Endowed Professorship in Education – Dr. Walter Buboltz
Elva Leggett Smith Professorship in Liberal Arts – Dr. Sheryl S. Shoemaker
Entergy Corporation LP&L/NOPSI Endowed Professorship #1 in Electrical Engineering – Dr. Randal Null
Entergy Corporation LP&L/NOPSI Endowed Professorship #2 in Electrical Engineering – Dr. Randal Null

Entergy Corporation LP&L/NOPSI Endowed Professorship #3 in Electrical Engineering – Dr. Randal Null

Entergy Corporation LP&L/NOPSI Endowed Professorship #4 in Electrical Engineering – Dr. Randal Null

Eva Cunningham Professorship in Education – Dr. David Szymanski

Eva J. Cunningham Endowed Professorship in Engineering - Dr. Markus Wobisch

Francis R. Mangham Endowed Professorship in Business – Dr. Marcia Dickerson

Franciscan Sisters of St. Francis Medical Center Endowed Professorship in Nursing – Carol Owens

Frank Earl Hogan Endowed Professorship in Engineering – Dr. Stanley Napper

Frank W. Merritt Endowed Professorship in Forestry –

George & Jean Baldwin Endowed Professorship in Education -- Dr. Donna Thomas

George & Jean Baldwin Endowed Professorship in Engineering – Dr. Chester Wilson

George E. Breazeal Family Professorship in Accounting – Dr. William W. Stammerjohan

George K. Anding Endowed Professor in English – Dr. James Richard Simmons

Gerald & Shirley Cobb Endowed Professorship in the College of Education – Dr. Carrice Cummins

Gladys Lawson Rogers Endowed Professorship in Liberal Arts – Joseph M. Slaughter

Harrelson Family Endowed Professorship in Engineering – Dr. Kelly Crittenden

Harrelson Family Endowed Professorship in Engineering #2 – Dr. Shengnian Wang

Hazel Stewart Garner Endowed Professorship in Chemistry – Dr. Ramu Ramachandran

Herbert H. McElveen Endowed Professorship in Education – Dr. Dawn Basinger

Herbert H. McElveen Professorship in Liberal Arts –Tom Garza

Herbert McElveen Endowed Professorship in Applied & Natural Sciences – Dr. Teresa Maness

Herbert McElveen Professorship in Business – Dr. Rebecca J. Bennett

Homer T. Rogers Endowed Professorship in Forestry –

Howard (Connie Martin) Professorship in the School of Architecture – Dr. Pasquale DePaola

Hubberd H. & Velma Horton Boucher Professorship in Education – Dr. Kimberly Kimbell-Lopez

Humana Foundation/McCallister #1 Endowed Professorship in Accounting – Dr. Andrea Drake

Humana Foundation/McCallister #2 Endowed Professorship in Accounting – Dr. Andrea Drake

Humana Foundation/McCallister #1 Endowed Professorship in Economics & Finance – Dr. Jason Hur

Humana Foundation/McCallister #2 Endowed Professorship in Economics & Finance – Dr. Jason Hur

Humana Foundation/McCallister #1 Endowed Professorship in Management & Marketing – Dr. J. Bryan Fuller

Humana Foundation/McCallister #2 Endowed Professorship in Management & Marketing – Dr. J. Bryan Fuller

Hyman J. Sachs English Professorship – Dr. Patrick P. Garrett

Jack & Peggy Byrd Professorship in the College of Business – Dr. Christopher L. Martin

Jack T. Painter Endowed Professorship in Civil Engineering – Dr. Henry Cardenas

James Alvey Smith Endowed Professorship in Music & Performing Arts – Dr. Randall Sorensen

James C. Jeffery, M.D. Endowed Professorship in Pre-Med - Dr. Patrick L. Hindmarsh

James E. Wyche, III Professorship in Engineering – Dr. Mark DeCoster

James Emmett Smith Endowed Professorship in Mechanical Engineering – Dr. Jun-Ing Ker

James F. Naylor, Jr. Endowed Professorship in the College of Engineering & Science – Dr. David Hall

James R. Mays Professorship in Education – Dr. Amy Vessel

James W. Adams Professorship in Electrical Engineering – Dr. Sandra Zivanovic

Jason C. Owen Endowed Professorship in Education -

Joe D. Waggonner Professorship in Political Science – Dr. Jason Pigg

Joe D. Waggonner Professorship in the College of Engineering & Science –Dr. Kathleen Johnston

John & Vergie Shealy Professorship in Forestry – Dr. William Ross

John D. Winters Endowed Professorship in History – Dr. Jeffery R. Hankins

John Ed Barnes Endowed Professorship in Entrepreneurship – Dr. Son A. Le

John J. Cordaro/Entergy Corporation LP&L/NOPSI Endowed Professorship #5 in Electrical Engineering – Dr. Randal Null

John J. Cordaro/Entergy Corporation LP&L/NOPSI Endowed Professorship ##6 in Electrical Engineering – Dr. Dentcho Genov

JPJ Investments Endowed Professorship in Financial Planning – Dr. Qiming Wang

Ken Hollis Professorship in the College of Liberal Arts – Mr. Guy Carwile

KPMG Endowed Professorship in Business –

Lallage Wall Endowed Professorship in Performing Arts – Cherrie Sciro

Lincoln General-Glenwood Endowed Professorship in Nursing – Tara Haskins

Linnie McGee Leggett Endowed Professorship in Agriculture – Dr. Aaron Lusby

Mabel and Doug McGuire Endowed Professorship in English – Dr. Ernest P. Rufleth

Marvin T. Green Endowed Professorship in Pre-medicine – Dr. Rebecca Giorno-McConnell

Mary Robin Dorsett Endowed Professorship in Education – Dr. Jeffrey Walczyk

Maurice B. Tatum Endowed Professorship in the College of Business – Dr. John Francis

Max P. Watson, Jr. Endowed Professorship #1 in the College of Business – Dr. Bruce Alford

Max P. Watson, Jr. Endowed Professorship #2 in the College of Business – Dr. Barry J. Babin

Max P. Watson, Jr. Endowed Professorship #3 in the College of Business - Dr. Laura Flurry

Max Watson, Sr. Endowed Professorship in Mechanical Engineering – Dr. Patrick O'Neal

Maxfield Endowed Professorship in Mathematics & Statistics – Dr. Galen Turner

McDermott International Endowed Professorship in the College of Engineering & Science – Dr. Weizong Dai

McGehee Endowed Professorship in Agriculture – Dr. William Green

Melvin McCann Professorship in Education –Dr. Tammy Schilling

Merle L. & Virginia M. Borchelt Endowed Professorship in Human Ecology –

Mildred Saunders Adams Endowed Professorship in English – Dr. Susan Roach

Mildred Trussell McGehee Endowed Professorship in Early Childhood Education –Dr. Julie Rutledge

Morelle Emmons Professorship in Education – Dr. Ida Chauvin

Norman & May Pipes Johnson Professorship in Forestry & Horticulture – Dr. Daniel Paul Jackson

Patricia Garland Endowed Professorship in Business –

Robbie Auger Watson Endowed Professorship in Human Ecology #1 – Dr. Katie Barrow

Robbie Auger Watson Endowed Professorship in Human Ecology #2 – Dr. Heather H. McCollum

Robbie Auger Watson Endowed Professorship in Human Ecology #3 – Dr. Pei Liu

Robert C. Snyder English Endowed Professorship – Dr. Robert Rudnicki

Robert Howson Endowed Professorship in Civil Engineering – Dr. Naziuddin Wasiuddin

Roger Thomas Luffey Endowed Professorship in Education – Dr. Lanie Dornier

Robert W. Levy Endowed Professorship in History -

Scott Weathersby Endowed Professorship in Zoology/Premedicine - Dr. Jamie Newman

State Farm Endowed Professorship in the College of Business – Dr. Hani Mesak

Sue Woodard Huckaby Endowed Professorship in Human Ecology – Dr. Amy Yates

SWEPCO Endowed Professorship in Engineering – Dr. Box Leangsuksun

T. W. Ray Johnson Professorship in Chemistry – Dr. William Deese

Terrell and Henry Families Endowed Professorship in Engineering – Dr. Niel Crews

Thelma Shipp Stewart Endowed Professorship in Chemistry – Dr. Sven Eklund

Thomas C. & Nelda M. Jeffery Professorship in Chemical Engineering – Dr. Daniela S. Mainardi

Thomas Jackson "Jack" Magee, Jr. & Mary Jo Cunningham Magee Ross Endowed Professorship –

Thomas O'Kelley Mitchiner Endowed Professorship in Business – Dr. Christie Fuller

Thurman Lauret Professorship in Engineering -- Dr. Leland Weiss

Upchurch Endowed Professorship in the College of Engineering & Science – Dr. Sumeet Dua

Virgil Orr Professorship in Chemical Engineering – Dr. James D. Palmer

Virginia Pennington Endowed Professorship in Nursing – Nancy Darland

W. W. Chew Endowed Professorship in the College of Engineering & Science – Dr. Jean Gourd

W. W. Chew Professorship #2 in Engineering – Dr. Dick Greenwood

Waller Professional Aviation Endowed Professorship - Mr. Jordan Lyons

Wayne & Juanita Spinks Professorship in Engineering #1 – Dr. Steve Jones

Wayne & Juanita Spinks Professorship in Engineering #2 –

Wayne A. & Juanita Spinks Endowed Professorship #3 in the College of Engineering & Science – Dr. Neven Simicevic

William Y. Thompson Endowed Professorship in History – Dr. David M. Anderson

University Faculty Emeriti

Daniel D. Reneau, President & Professor Emeritus

Virgil Orr, Vice President Emeritus, Academic Affairs
Kenneth W. Rea, Vice President Emeritus, Academic Affairs
E. S. Foster, Vice President Emeritus, Student Affairs
O.J. Hall, Vice President Emeritus, Student Affairs, and University Advancement
Jerry S. Drewett, Vice-President Emeritus, Administrative Affairs
Joseph R. Thomas, Jr., Vice-President Emeritus, Finance and Administrative Affairs

Jerry W. Andrews, Dean Emeritus, College of Education
B. J. Collinsworth, Dean Emeritus, College of Education
Jo Ann V. Dauzat, Dean Emerita, College of Education
Michael A. DiCarlo, Dean Emeritus, Library
Linda D. Griffin, Dean Emerita, Student Affairs
Edward C. Jacobs, Dean Emeritus, College of Liberal Arts
James D. Liberatos, Dean & Professor Emeritus, College of Applied & Natural Sciences
Agnes C. Miller, Dean Emerita, College of Human Ecology
Shirley P. Reagan, Dean Emerita, College of Business
William W. Wicker, Dean Emeritus, Library

James D. Nelson, Associate Dean & Professor Emeritus, College of Engineering & Science
Nancy M. Tolman, Associate Dean & Professor Emerita, College of Applied & Natural Sciences

Phoebe Allen, Professor Emerita, College of Liberal Arts
Dwight C. Anderson, Professor Emeritus, College of Business
Billy J. Attebery, Professor Emeritus, College of Arts & Sciences
Jon A. Barker, Professor Emeritus, College of Liberal Arts
Randall Franklin Barron, Professor Emeritus, College of Engineering
Robert J. Berguson, Professor Emeritus, College of Liberal Arts
Patricia Bourgeois, Professor Emerita, College of Applied & Natural Sciences
John C. Brewer, Professor Emeritus, College of Liberal Arts
Robert Mack Caruthers, Professor Emeritus, College of Engineering
Philip C. Cook, Professor Emeritus, College of Liberal Arts
Melvin C. Corley, Professor Emeritus, College of Engineering & Science
Marion Earl Council, Professor Emeritus, College of Engineering & Science
David H. Cowling, Professor Emeritus, College of Engineering & Science
Dean Dablow, Professor Emeritus, College of Liberal Arts
J. Clarice Dans, Professor Emerita, College of Liberal Arts
Samuel V. Dauzat, Professor Emeritus, College of Education
Billy J. Davis, Professor Emeritus, College of Life Sciences
Lou H. Davison, Professor Emerita, College of Applied & Natural Sciences
Jonathan Donehoo, Director & Professor Emeritus, School of Art, College of Liberal Arts
Dianne Douglas, Professor Emerita, College of Liberal Arts
Robert J. Fakelmann, Professor Emeritus, College of Liberal Arts
Peter W. Gallagher, Professor Emeritus, College of Applied & Natural Sciences
Richard L. Gibbs, Professor Emeritus, College of Engineering & Science
B. H. Gilley, Professor Emeritus, College of Arts & Sciences
Richard J. Greechie, Professor Emeritus, College of Engineering & Science
Paul N. Hale, Professor Emeritus, College of Engineering & Science
Ruth Ellen Hanna; Professor Emerita, College of Engineering & Science
Sue H. Holder, Professor Emerita, College of Liberal Arts
Janie H. Humphries, Professor Emerita, College of Applied & Natural Sciences
Alice E. Hunt, Professor Emerita, College of Applied & Natural Sciences
Peter R. Jones, Professor Emeritus, College of Liberal Arts
James D. Lowther, Professor Emeritus, College of Engineering & Science
James Malone, Professor Emeritus, College of Engineering
Margaret W. Maxfield, Professor Emerita, College of Arts & Sciences
Robert W. McLeane, Professor Emeritus, College of Engineering
James R. Michael, Professor Emeritus. College of Business
Pamela V. Moore, Professor Emerita, College of Applied & Natural Sciences
Robert W. Moran, Professor Emeritus, College of Liberal Arts
Raja F. Nassar, Professor Emeritus, College of Engineering & Science
Jack T. Painter, Professor Emeritus, College of Engineering
Virginia R. Pennington, Professor Emerita, College of Applied & Natural Sciences
Edwin S. Pinkston, Professor Emeritus, College of Liberal Arts
John K. Price, Professor Emeritus, College of Liberal Arts
Larry G. Sellers, Professor Emeritus, College of Applied & Natural Sciences
Lloyd Dale Snow, Professor Emeritus, College of Engineering & Science
James G. Spaulding, Professor Emeritus, College of Applied & Natural Sciences
Raymond L. Sterling, Professor Emeritus, College of Engineering & Science
Joseph W. Strother, Professor Emeritus, College of Liberal Arts
Dileep Sule, Professor Emeritus, College of Engineering & Science
Carole S. Tabor, Professor Emerita, College of Liberal Arts
Billy Jack Talton, Professor Emeritus, College of Education
Carolyn F. Talton. Professor Emerita, College of Education
Lajeane G. Thomas, Professor Emerita, College of Education
Ronald H. Thompson, Professor Emeritus, College of Engineering & Science
William Y. Thompson, Professor Emeritus, College of Arts & Sciences
Joe R. Wilson, Professor Emeritus, College of Engineering
David F. Wylie, Professor Emeritus, College of Liberal Arts

University Honors Program Faculty

Anderson, David M.; Associate Professor, History – BA, MA, Univ. of Nevada at Las Vegas; PhD, Univ. of North Carolina (2003) Graduate Faculty

Asiedu, Christobel; Assistant Professor, Social Sciences – BA, Univ. of Ghana; MA, Univ. of Wyoming; PhD, Univ. of Illinois (2007)

Barron, Brian; Lecturer, Mathematics & Statistics – BS, MS, PhD, Louisiana Tech Univ.; MDiv, St. Paul School of Theology (2006) Graduate Faculty

Campbell, William J., Jr.; Associate Dean for Research, College of Applied & Natural Sciences, and Professor & Director, Biological Sciences - BA, Univ. of South Florida; MS, PhD, Univ. of Florida (1992) Graduate Faculty

Crittenden, Kelly; Associate Professor, Mechanical Engineering – BS, PhD, Louisiana Tech Univ. (2003) Graduate Faculty

Cronk, Stanley R.; Lecturer, Industrial Engineering – BS, PhD, Louisiana Tech Univ. (2001) Graduate Faculty

Crook, Paul Bryant; Associate Professor of Theatre – BA, MFA, Univ. of Alabama (2005) Graduate Faculty

Darrat, Ali F.; Professor, Economics & Finance BA, Univ. Benghazi; MA, PhD, Indiana Univ. (1987) Graduate Faculty

Evans, Katie; Director, Integrated STEM Education Research Center and Associate Professor, Mathematics – BS, Morehead State Univ.; MS, PhD, Virginia Tech Univ. (2005) Graduate Faculty

Francis, John; Assistant Professor, Economics & Finance – BA, Univ. of Illinois; MA, PhD, Michigan State Univ. (2006) Graduate Faculty

Gilley, Otis W.; Professor, Economics & Finance BS, Univ. of Texas - Arlington; MS, PhD, Purdue Univ. (1988) Graduate Faculty

Gourd, Jean F.; Assistant Professor, Computer Science – BS, PhD, Univ. of Southern Mississippi (2008) Graduate Faculty

Green, William H.; Professor and Resident Veterinarian, Agricultural Sciences - BS, Louisiana Tech Univ.; MS, DVM, Auburn Univ. (1992) Graduate Faculty

Hall, David E.; Associate Professor, Mechanical Engineering – BS, Louisiana Tech Univ.; MS, PhD Georgia Institute of Technology (1995); Graduate Faculty

Hancock, Liane A.; Assistant Professor, Architecture – BS, Massachusetts Institute of Technology; MArch, Columbia Univ. (2011) Graduate Faculty

Hankins, Jeffery R.; History Coordinator, Graduate Director, and Associate Professor, History – BA, Univ. of Texas; MA, Texas State Univ.; PhD, Louisiana State Univ. (2004) Graduate Faculty

Harbour, Davis; Lecturer, Electrical Engineering – BS, MS, Univ. of Oklahoma; PhD, Univ. Arkansas (2006) Graduate Faculty

Jewell, Daphne C.; Instructor, Biological Sciences - BS, MS, EdS, Louisiana Tech Univ. (1995)

Levin, Scott Anthony; Assistant Professor, English - BA, Boston Univ.; MA, Ohio State Univ.; PhD, Fordham Univ. (2011)

Lewis, Celia; Professor, English – BA, Univ. of Texas-Austin; Licence (BA), Maitrise (MA), Univ. of Paris III-La Sorbonne Nouvelle; PhD, Baylor Univ. (2001) Graduate Faculty

Livingston, Mary Margaret; Professor, Psychology & Behavioral Sciences BA, Univ. of Michigan; MA, PhD, Univ. of Alabama (1977) Graduate Faculty

Mack, Taylor E.; Assistant Professor, Social Sciences – BS, MS, Univ. of Kansas; PhD, Louisiana State Univ. (2006)

Magee, Bruce R.; Associate Professor, Foreign Languages & English - BA, Louisiana Tech Univ.; MDiv, ThD, New Orleans Baptist Theological Seminary; PhD, Louisiana State Univ. (1998); Graduate Faculty

Maggio, Beverly; Instructor, Kinesiology - BS, MS, Southern Univ. (1983)

McKevitt, Andrew C.; Assistant Professor, History - BA, St. Joseph's Univ.; PhD, Temple Univ. (2012) Graduate Faculty

Meng, Dave X.; Lecturer, Math - BS, Nanjing Institute of Technology; MS, Worcester Polytechnic Univ.; PhD, Tulane Univ. (1999) Graduate Faculty

Mhire, Jeremy J.; Assistant Professor, Political Science – BA, Univ. of Louisiana at Lafayette; MA, PhD, Louisiana State Univ. (2008)

Moegle, Mary Steele; Associate Professor, Music – BM, MM, Middle Tennessee State Univ.; DMA, Univ. of Colorado at Boulder (2000)

Merritt, Kevin; Instructor, Speech - BA, Western Washington Univ.; MA, Oklahoma State Univ. (1997)

Pigg, Jason; Associate Professor, Social Sciences, and Interim Head, Department of Social Sciences – BS, Univ. of Iowa; PhD, The Ohio State Univ. (2000)

Puljak, Karl; Associate Professor, Architecture, and Director, School of Architecture – BArch, Kansas State Univ.; MArch, Cranbrook Academy of Art. (1997) Graduate Faculty

Reynolds-Case, Anne; Associate Professor, Spanish – BA, Millsaps College; MA, Univ. of Southern Mississippi; PhD, Louisiana State Univ. (2002)

Robbins, Dorothy D.; Professor, English – BA, Oklahoma City Univ.; MA, Univ. of South Dakota; PhD, Univ. of Nebraska-Lincoln (2000) Graduate Faculty

Rudnicki, Robert W.; Professor, English – BA, Centenary College; MA, PhD, Texas A&M (2000); Graduate Faculty

Rufleth, Ernie P.; Assistant Professor, English – BA, MALS, Valparaiso Univ.; PhD, Purdue Univ. (2010) Graduate Faculty

Sciro, Cherrie; Professor and Coordinator of Theatre – BA, Louisiana Tech Univ.; MFA, Texas Tech Univ. (1992) Graduate Faculty

Simmons, James Richard, Jr.; Professor, English, Director, Center for Academic and Professional Development, and Director, Honors Program - BA, Coastal Carolina College; MA, PhD, Univ. of South Carolina (1997) Graduate Faculty

Strebeck, Christine Y.; Instructor, English - BA, Louisiana State Univ.; MA, Louisiana Tech Univ. (2010)

Swanbom, Michael; Lecturer, Engineering – BS, LeTourneau Univ.; MS, PhD, Louisiana Tech Univ. (2006)

Thomas, Donna B.; Department Chair, and Associate Professor, Psychology & Behavioral Sciences – BS, MS, Univ. of Louisiana Monroe, PhD, Louisiana Tech Univ. (2005) Graduate Faculty

Williams, Michael; Assistant Professor, Architecture – BS, BArch, Ball State Univ.; MArch, Cranbrook Academy of Art. (2004) Graduate Faculty

University Faculty

Abercrombie, Adam B.; Assistant Professor, Aerospace Studies, AFROTC Det. 305 - BS, Limestone College (2010)

Ackerman, Sandra G.; Clinical Professor, Medical Technology – BS, Univ. of Arkansas School of Medicine; MEd, Univ. of Arkansas-Little Rock (2000)

Adams, Heidi L.; Assistant Professor, Forestry - BS, MS, Univ. of Nebraska; PhD, Mississippi State Univ. (2014) Graduate Faculty

Adams, Joshua P.; Assistant Professor, Forestry - BS, Louisiana Tech Univ.: MS, PhD, Mississippi State Univ. (2015) Graduate Faculty

Alam, Shaurav Z.; Assistant Professor, Civil Engineering - BS, Bangladesh Univ. of Engineering & Technology; MS, Technical Univ. of Munich; PhD, Louisiana Tech Univ. (2014) Graduate Faculty

Alexander, Joe L.; Professor of Music – BM, East Carolina Univ.; MM, James Madison Univ.; DMA, Univ. of North Texas (2001)

Alford, Bruce L.; Associate Professor, Marketing & Analysis – BS, Univ. of West Florida, PhD, Louisiana State Univ. (2001) Graduate Faculty

Allouche, Erez; Associate Professor, Civil Engineering/TTC – BS, MS, Queen's Univ.; PhD, Univ. of Alberta, P.E. (2003) Graduate Faculty

Amyx, Douglas A.; Associate Professor, Marketing & Analysis – BBA, Univ. of Oklahoma; MBA, Univ. of Texas-Arlington; PhD, Oklahoma State Univ. (2000) Graduate Faculty

Anderson, David M.; Associate Professor, History – BA, MA, Univ. of Nevada at Las Vegas; PhD, Univ. of North Carolina (2003) Graduate Faculty

Anguah, Katherene O.; Assistant Professor, Human Ecology - BS, MS, Univ. of Ghana; PhD, Purdue Univ. (2014) Graduate Faculty

Arumugam, Prabhu U.; Assistant Professor, Mechanical Engineering, and IfM - BS, PSG College of Technology; MS, PhD, Univ. of Arkansas (2013) Graduate Faculty

Asiedu, Christobel; Assistant Professor, Social Sciences – BA, Univ. of Ghana; MA, Univ. of Wyoming; PhD, Univ. of Illinois (2007)

Atassi, Ahmad N.; Assistant Professor, History – Diploma, Institut Supérieur des Sciences Appliquées et Technologie, Syria; Diploma, École Supérieur d'Electricité, France; MS, PhD, Michigan State Univ.; MA, PhD, Univ. of California at Santa Barbara (2007) Graduate Faculty

Auguah, Katherene O.; Assistant Professor, Human Ecology - BS, MS, Univ. of Ghana; PhD, Purdue Univ. (2014)

Babin, Barry J.; Professor, Marketing & Analysis – BS, PhD, Louisiana State Univ. (2007) Graduate Faculty

Barron, Brian; Lecturer, Mathematics & Statistics – BS, MS, PhD, Louisiana Tech Univ.; MDiv, St. Paul School of Theology (2006) Graduate Faculty

Barrow, Katie M.: Assistant Professor, Human Ecology - BS, Missouri State Univ.; MS, Miami Univ. (Ohio); PhD Virginia Tech Univ. (2014) Graduate Faculty

Basinger, Dawn; Director of Certification and Professional Experiences, College of Education, and Associate Professor, Curriculum, Instruction, & Leadership – BS, Northwestern State Univ.; MEd, EdD, Louisiana Tech Univ. (2000) Graduate Faculty

Bates, Tiffany L.; Assistant Professor, Psychology & Behavioral Sciences - BS, Grambling State Univ.; MS, Xavier Univ.; PhD, Sam Houston State Univ. (2014) Graduate Faculty

Beckham, Mary Ruth; Clinical Instructor, Clinical Laboratory Science; BS, Tennessee Tech Univ.; MEd, Univ. of Mary Hardin Baylor (2009)

Bell, Terry S.; Clinical Professor, Medical Technology - AD, Shawnee State Univ.; BS, Wright State Univ.; MD, Ohio State Univ. (1995)

Bennett, J. Allen; Instructor, Economics & Finance – BS, Washington Univ.; MBA, Univ. of Michigan; MDIV, Winebrenner Theological Seminary (2006)

Bennett, Rebecca J.; Professor, Management & Information Systems – BA, Washington Univ.; MS, PhD, Northwestern Univ. (2004) Graduate Faculty

Berg, Jerry L., II: Associate Professor, Art – BFA, MFA Kansas State Univ. (2005) Graduate Faculty

Berry, Rajiv: Assistant Professor, Chemistry & Nanosystems Engineering – MS, Indian Institute of Technology-Delhi; MS, Univ. of Missouri-Kansas City; PhD, Univ. of South Carolina (1994) Graduate Faculty

Bishop, Thomas; Associate Professor, Physics & Chemistry - BS, Louisiana State Univ.; MS, New York Univ.; PhD, Univ. of Illinois - Urbana (2011) Graduate Faculty

Blackman, Debra L.; Lecturer, Computer Science - BS, MBA, Louisiana Tech Univ. (2104)

Blackstock, Robert C., Jr.; Acting Assistant Professor, Economics & Finance – BS, Northeast Louisiana Univ.; MS, PhD, Auburn Univ. (2005) Graduate Faculty

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Leonidas Iassemidis, BS, MS, PhD • *Director, Center for Biomedical Engineering and Rehabilitation Science • College of Engineering & Science*
David Thomas Iseley, BS, MS, PhD • *Administrative Director, Trenchless Technology Center • College of Engineering & Science*
Lindsey Keith-Vincent, BS, MS • *Director, Science & Technology Education Center (IDEA Place, NASA Educator Resource Center, Planetarium) • College of Education*
Aaron Lusby, BS, MS, PhD • *Director, Center for Rural Development • College of Applied & Natural Sciences*
Christina Madix, BS, MS • *Director of Clinical SLP Services, Department of Communication Disorders, School of Communication• College of Liberal Arts*
Dave N. Norris, BS, MA, PhD • *Chief Innovation Officer, Enterprise Center*
James R. Simmons, Jr., BA, MA, PhD • *Director, The Center for Academic and Professional Development*
S. Kathleen Wyatt, BBA, MBA • *Director, Technology Business Development Center • Enterprise Center*
Vacant •*Director, Center for Entrepreneurship and Information Technology*

University Advancement

Corre A. Stegall, BA, MA • *Vice President, University Advancement*
Tyson Baldwin • *Director of LTAC*
Wesley T. Cavin, BS • *Director, Alumni Relations*
Pamela A. Gilley, BS, CPA • *Chief Financial Officer*
Penny K. Humphries, BS • *Director of Development*
Jennifer A. Riley, BS, JD • *Executive Director of Development and Legal Counsel*
Michele Robinson, BS • *Director of Major Gifts*
Lisa G. Smith • *Coordinator, Advancement Services*
Scott A. Smith, BS • *Director, Information Systems*
Nate Warren, BS • *Assistant Athletics Director, Development*
Jimmy Washington, BA, MA, MA • *Coordinator, Advancement Programs*

Athletics

Thomas H. McClelland, II, BGS, MS • *Athletics Director*
Mary Kay Hungate, BS, MS • *Deputy Athletics Director, Senior Woman Administrator*
Marco Born, BBA, MS • Senior *Associate Athletics Director, External Affairs*
Malcolm Butler, BA • *Associate Athletics Director, Communications*
Marie Gilbert, AS, BGS, GC • *Associate Athletics Director, Chief Financial Officer*
Adam McGuirt, BS • *Associate Athletics Director, Internal Operations*
Elise Broussard, BA, MA • *Assistant Athletics Director, Ticket Operations*
Amber Burdge, BS, MS • *Assistant Athletics Director, Academics*
Jay Luksis, BS • *Assistant Athletics Director, Marketing and Game Management*
W. Thomas Graham, BA, MACG • *Academic Advisor (Football)*
Kaitlyn McCanna, BA, MA • *Academic Advisor (Men's/Women's Basketball)*

Louis "Skip" Holtz, BS • *Head Coach, Football*
Michael White, BA • *Head Coach, Men's Basketball*
Tyler Summitt, BA • *Head Coach, Women's Basketball*
Greg Goff, BS • *Head Coach, Baseball*
Mark Montgomery, BA, MA • *Head Coach, Women's Softball*
Gary Stanley, BA, MA • *Head Coach, Men's and Women's Track & Field*
Jerry Miles • *Head Coach, Women's Bowling*
Kevin Sherry, BA, MEd, MS • *Head Coach, Women's Soccer*
Jeff Jenkins, BS • *Head Coach, Men's Golf*
Adriano de Souza, BS, MA • *Head Coach, Women's Volleyball*
Chad Camper, BA • *Head Coach, Women's Tennis*

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