

Chapter 16 - Graduate Program Interdisciplinary Ph.D. Program in Computational Analysis & Modeling (CAM)

Administration

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More information about the Computational Analysis & Modeling program can be obtained by writing:

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and/or visiting the web site:

<http://www2.latech.edu/~dai/ACAM.html>

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 Administration and 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 coordinator 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 the 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 page 98 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, Course Work 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 an Area of Application chosen from chemistry, physics, biology, forestry, statistics, or a participating engineering discipline. The remaining courses will be determined by discussion between the student and the advisor, with the approval of the interim committee (see below). An initial plan of study must be submitted by the end of the first quarter of enrollment.

The student's Area of Application must be declared within his/her first year in the program. NOTE: The dissertation need not necessarily be written in the Area of Application. It may be written in mathematics, computer science, finance or possibly another area included in this program. The topic of the dissertation will be formally called the Area of Specialization.

Committees

Each student will be assigned an Interim Committee no later than his/her second quarter in the program. This committee will consist of at least 3 members, 1 from each of the following areas:

1. Mathematics and Statistics
2. Computer Science
3. Student's Area of Application.

A Doctoral Committee will replace the student's interim committee within 1 year of passing the qualifying examination. The Doctoral Committee will work with the student to plan the research to be undertaken for the degree. It will be composed of at least 4 graduate faculty members approved by the CAM steering committee and shall have the following membership:

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. Special permission from the Dean of the Graduate School is required to take any one of these exams more than twice.

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 (which may be mathematics, computer science, the area of application, or some other area included in this program). 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 at least 2 weeks prior to the date the degree is expected to be received. Those serving on the doctoral committee must recommend, with at most one dissent, that the student has satisfactorily passed the dissertation defense exam.

Time Limits

The student must complete the dissertation and pass the dissertation defense examination within 6 years after being admitted to candidacy.

Timetable

Matriculation - Interim Committee assigned no later than a student's second quarter in the program. An initial plan of study must be submitted by the end of a student's first quarter of study. Area of application must be declared within the first year.

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 area of application (may consist of master's degree).

Doctoral Committee - Chosen within 1 year of passing the qualifying exam. Minimum of 4 members appointed as described above.

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 now has a maximum of 6 years to complete the dissertation and pass the dissertation defense exam in order to graduate.