

Virgil Orr Undergraduate Junior Faculty Award 2018

Dr. Jamie Newman, Assistant Professor School of Biological Sciences, College of Applied and Natural Sciences

It is a great honor to be nominated by the College of Applied and Natural Sciences for the Virgil Orr Undergraduate Junior Faculty Award. This is an even greater and more humbling honor since this is the third consecutive time I have been selected by the College. I very much appreciate the recognition of my colleagues who value my contribution to the mission of Louisiana Tech University. In my time at Louisiana Tech I have worked to maintain a commitment to quality in teaching, research, and service by contributing to the “interdisciplinary teaching, learning, and research environment” that defines the University. I do this through interdisciplinary activities that actively engage the students in the classroom, in the lab, and across campus. I hope that by the end of this packet you will see that I am passionate about ensuring the success of our students and providing them with opportunities to achieve their goals.

Belief in Teaching, Research, and Service to Serve Mission of the University

One of the qualities I value most about Louisiana Tech University is that it allows faculty to pursue their strengths and passions whether that be in the classroom, the laboratory, or through service, all with the intention of benefiting our students. Our students are a reflection of the University and on a more personal level, those I instruct in the classroom, advise in my office, or work with in the lab are an even more direct reflection of me. I often say that **their success is my success and our success as a University**; the students are what brings me the greatest satisfaction and joy in my job. Their acceptance to competitive PhD programs, professional school, summer programs, and employment upon graduation helps me and the University build a reputation for training capable students, creating, what I hope, are more opportunities for students from Louisiana Tech in the future. I value the opportunities I have at Tech to **focus on the students through my involvement in interdisciplinary teaching, interdisciplinary research, and a wide range of service opportunities** to the University, community, and my profession.

Every day I work hard to prioritize what is best for my students. Over the years that has taken on different forms, but I strongly believe that is at the root of every decision that I make. Sometimes this has meant reviewing posters for conferences late at night or early in the morning, listening to multiple practice presentations, reading rough drafts for class assignments, reviewing resumes, reading medical school or graduate school personal statements, preparing programs for graduation receptions, promoting students through our social media outlets and press releases, or visiting with students in my office well past office hours to help them find their own passion and direction. Not everything we do for our students appears in our annual evaluations or in tenure and promotion dossiers or even appears in these types of applications, but **the success of our students when they leave Louisiana Tech is a permanent reflection on us individually and on our University**. I strive to demonstrate respect to my students and work diligently to maintain their respect. I earn the respect of my colleagues and peers at the University and outside of the University by promoting and sharing high quality students, helping them in turn garner the respect of those around them and helping Louisiana Tech to uphold a reputation of a respected quality academic institution.

Recently, graduating students in my lab told some of the new students that they will work harder than students in a lot of other labs, but that their **“greatest asset was Dr. Newman.”** They went on to tell them that if they work hard, take my comments seriously, and take advantage of the opportunities presented to them they will be successful and it will be worth it. To me this was confirmation of what I strive to do in my own career: to help students achieve their goals; **if the students I work with are willing to invest in their education and themselves then I will do whatever I can do help them**. I do the same thing in all of my classes hearing recently that students in my Stem Cell Biology class have never had a professor who responded to email so quickly or gave so much feedback on their assignments. They asked what other courses I taught so that they could take

those as well. My investment to all of the students I encounter means countless edits on papers, proposals, theses, poster, and presentations, regular meetings with students during and outside of scheduled office hours, writing letters of recommendation, and helping to connect students to opportunities that broaden their perspective, increase their own professional network, and improve their chances for future success in whatever they choose to pursue.

Activities in Teaching, Research, and Service

Teaching: Given my level of research funding and involvement of students in my research lab, my instructional responsibility to the University requires that I teach 3-4 credit hours each quarter, with the majority of those being upper-level undergraduate and graduate biology courses. Although the number of students I see in the classroom is not as high as others, I use that to work with my students on writing, oral communication, and critical thinking skills to help them solidify and apply their knowledge in the biological sciences. I have created new courses for students in cutting edge areas of biology including stem cell biology and the human genome. In addition, I have helped to create and teach a course (BISC380: Biology Colloquium) where students attend and discuss weekly seminars offered in the School of Biological Sciences. This weekly series has introduced students to areas of biology and career opportunities they may not have previously considered and has been very well received by our students. (Summer courses and many of the 1 credit and special problems courses are not evaluated by students.)

Course Number	Course Title	Sections Taught	Total Enrollment	Avg Instructor Rating
BISC470/BISC570/MSNT657	Medical Ethics/Bioethics	6	123	3.5
BISC502/MSNT502	Research Methods	5	78	3.9
BISC480	Undergraduate Seminar	4	37	N/A
BISC450C/BISC517C/MSNT510	Stem Cell Biology	2	28	4.0
BISC450C/BISC517C/MSNT510	Human Genome	1	12	4.0
ANS289	Genes & Society	1	12	4.0
BISC516C/ENGR550	Research Ethics	1	9	N/A
BISC380	Biology Colloquium	1	20	N/A
BISC535	Graduate Special Topics	1	7	N/A
BISC360/MSNT517/BISC530	Special Problems	N/A	24	N/A

Research: Part of my appointment requires me to maintain an active research lab training undergraduate and graduate students. As part of this I not only teach the students to perform research, my students also participate in writing grants, publishing their research in peer-reviewed journals, and presenting their research at local, state, national, and international meetings. Since I started in my position in the Fall of 2013 I have helped students to complete one honors thesis (the first in the College of Applied and Natural Sciences), four master's theses, and am currently supervising three PhD students working on their dissertations. I have had several undergraduates graduate from Louisiana Tech and go on to medical school, graduate school, and I have one working as a lab technician at MIT. My graduate students have gone on to pursue PhDs at Vanderbilt and Tulane and one entering an MD/PhD program at LSU-NO. (<https://latechnewmanlab.weebly.com/people.html>)

Thesis	Students
Senior Honors Thesis	Rachel Eddy
Master's Thesis	Erik Beadle, Ngozi Ogbonnaya, Nehal Patel, and Anna Whitehead, Mengcheng Liu (in progress)
Dissertations (all in progress)	Joseph Straub, Sree Venigalla, Chris Miller
Total Students Trained in the Lab	25

Community/Service Projects: I value my ability to participate in a number of service opportunities that allow me to serve my scientific professional community and aim to improve the quality of education we provide at Louisiana Tech. Below is a table listing some of these activities along with a brief description of some that I am most involved in and feel most passionate about.

Time	Activity
Spring 2018	University Climate Survey Committee
February 2018-Present	Sponsored Projects Working Group, Louisiana Tech University
September 2017-Present	University Work Life Policy Committee
2017-Present	Reviewer for NSF Graduate Student Fellowships
September 2017-Present	Section Chair, Molecular and Biomedical Research, Louisiana Academy of Sciences
September 2017-Present	Co-Founder & Co-Director of VISTA and Minor in Pre-Medical Illustration
May 2016-Present	Biological Sciences Recruitment & Retention Committee
September 2015-Present	Waggoner Center Fellow, Louisiana Tech University
September 2013-Present	Founder of New Frontiers in Biomedical Research Seminar Series, Louisiana Tech University
December 2017-March 2018	Health Information and Informatics Director Position Search Committee
September 2016-January 2018	Biological Sciences Tenure-Track Faculty Search Committee
Summer 2015	Biological Sciences Lecturer Search Committee
September 2014-August 2016	Faculty Advisory Council to the Dean, College of Applied and Natural Sciences, Louisiana Tech University

New Frontiers in Biomedical Research Seminar Series is a year-long seminar series that brings prominent biomedical researchers to Louisiana Tech University allowing us to showcase our resources, faculty, and students, and provide our faculty and students an opportunity to build their professional network. In its 5th year, the series continues to become more interdisciplinary and increasingly well attended, filling the University Hall auditorium nearly every time we host a guest lecturer. **What is most unique about this series is that it is interdisciplinary, collaborating with four of the five colleges on campus to show that Biomedical Research is more than biology bench work but integrates various area of science, engineering, and communication.** <http://biomedicalresearch.wixsite.com/new-frontiers>

VISTA (Visual Integration of Science through Art) is an interdisciplinary program initiated by myself, Mr. Nick Bustamante (Studio Art) and Dr. Mary Calderera-Moore (Biomedical Engineering). Sparked by an earlier collaboration with Nick where he created some illustrations for a publication with me and Mary, Nick offered a new course in digital painting in the Winter of 2015 and Mary and I regularly participate in the final assignment where students compete for the cover of next year's New Frontiers in Biomedical Research Seminar Series brochure or work with another faculty member from the University to produce relevant artwork in a biomedical-related area (this year that has included Dr. Ramu Ramachandran, Dr. Julie Rutledge, and Dr. Natalie Clay as "clients" for the course). This program has grown quickly and now offers a minor in pre-medical illustration and is partnering with University and community groups including Building Futures and Lincoln Health Foundation to give students real-world client experience and give back to the local community by enhancing patient experience with health care in North Louisiana. **This is an exciting interdisciplinary educational opportunity that professionals in the field who serve on our advisory board have noted is critical and unique in its approach.** <https://latechvista.weebly.com/>

Biological Sciences Recruitment and Retention Committee aims to promote the School of Biological Sciences with students and reconnect with alumni. With 650 undergraduate biology majors and another 30 graduate students, it is important that we are doing what we can to help our students be successful by recognizing and promoting their accomplishments, helping them build a professional network, and continuing to recruit a strong group of students to join them in the pursuit of their degree. I have been a member of this committee for the

past three years and in that time I have:

- Initiated social media for the School of Biological Sciences (Facebook and Twitter)
- Updated the School of Biological Sciences website
- Written and published regular press releases for the website
- Served on committees to revise the graduate curriculum
- Served on a faculty search committee
- **Initiated the first Advisory Board for the School of Biological Sciences**
- Initiated and help organize quarterly graduation activities for graduating students
- **Established a scholarship in honor of Dr. Gary Zumwalt, a professor in the department who passed away in December of 2015. The scholarship is already endowed, was awarded to two students last spring, and will continue to be awarded to two students annually who share Gary's passion for the environment and the study of geology, ecology, and evolution.**

Awards and Recognition for Efforts in Teaching, Research, and Service

- **Best Full Project Presentation**, Louisiana Biomedical Research Network (2018)
- **National Recognition Award**, College of Engineering and Science, for enhancing recognition of the University through the New Frontiers in Biomedical Research Seminar Series (2017)
- University Nominee for [Blavatnik Awards for Young Scientists](#) (2017)
- Nominated by College of Applied and Natural Sciences for **Virgil Orr Undergraduate Junior Faculty Award** (2017)
- **Scholarly Activity Award**, College of Applied and Natural Sciences, Louisiana Tech University (2017)
- Nominated by College of Applied and Natural Sciences for **Virgil Orr Undergraduate Junior Faculty Award** (2016)
- **Research Award**, College of Applied and Natural Sciences, Louisiana Tech University (2016)
- **Teaching Award for 300 Level and Above Courses**, College of Applied and Natural Sciences, Louisiana Tech University (2015)
- Students in my lab have given over 90 poster and oral presentations winning over **20 awards** for their excellence in research and presentation (<https://latechnewmanlab.weebly.com/grants--awards.html>)



Lab at the 2018 Louisiana Academy of Sciences Annual Meeting

Publications & Grants

Selected Publications: Student authors are underlined with undergraduates denoted with *

(<https://latechnewmanlab.weebly.com/publications.html>)

- Sandel DA*, Liu M, Ogbonnaya N,, **Newman JJ**. Notch3 Regulates Induction of Human Adipose Stem Cell Adipogenesis. *Biochimie*. In press. May 2018
- Whitehead AK, Barnett H, Caldorera-Moore ME, **Newman JJ**. Poly (Ethylene Glycol) Hydrogel Elasticity Influences Human Mesenchymal Stem Cell Behavior. *Regenerative Biomaterials*. April 2018.
- Patel NR, Whitehead AK*, **Newman JJ**, Caldorera-Moore ME. Poly(ethylene glycol) Hydrogels with Tailorable Surface and Mechanical Properties for Tissue Engineering Applications. *American Chemical Society Biomaterials Science & Engineering*. August 2016
- **Newman JJ**, Patel N, Caldorera-Moore M. *Engineered Stem Cell-Based Scaffolds and Patches for Heart*

Disorders. Chapter 14 in: Microscale Technologies for Stem Cells Engineering. Springer, 2016

Selected Grants: To date I have been the Principal Investigator on extramural grants totaling **\$661,000**. **\$106,900 of that funding has gone directly to undergraduate and graduate students with over \$30,000** being earned by the students themselves who wrote for competitive research awards through Louisiana Board of Regents and Louisiana Space Consortium. Below is selected list of grants awarded to me and my students (<https://latechnewmanlab.weebly.com/grants--awards.html>)

- Louisiana Biomedical Research Network. The Role of Mediator in Maintaining and Differentiating Human Mesenchymal Stem Cells. **Funded: \$350,000 (May 2015-April 2019)**
- Louisiana Space Consortium Research Enhancement Award. Influences of Biomaterials in Directing Stem Cell Fate. **Funded: \$30,500 (August 2017-July 2018)**
- Louisiana Space Consortium (LaSPACE) Undergraduate Research Assistantship (Student: Rachel Eddy) Optimization and Characterization of the Osteogenic Differentiation of Human Mesenchymal Stem Cells on Tailorable Hydrogel Scaffolds. **Funded: \$6,000 (August 2017-August 2018)**
- Louisiana Biomedical Research Network. Imaging System Upgrade for the BioTek Cytation5 Plate Reader. **Funded: \$100,000 (April 2016-April 2017)**
- Louisiana Board of Regents Supervised Undergraduate Research Experience (SURE) (Student: India Pursell). Differentiation of Mouse Embryonic Stem Cells into Cardiomyocytes for Tissue Engineering. **Funded: \$5,000 (January 2017-December 2017)**
- Louisiana Space Consortium (LaSPACE) Graduate Research Assistantship (Student: Anna Whitehead). Differentiation of Pluripotent Stem Cells into Cardiomyocytes for Cardiac Tissue Engineering. **Funded: \$8,000 (August 2016-May 2017)**
- Louisiana State University Health, Center for Cardiovascular Research. Optimization of Cardiac Muscle Generation for Replacement of Damaged or Weakened Tissue. Co-PIs: Dr. Mary Caldorera-Moore and Dr. Paari Dominic. **Funded: \$50,000 (July 2015-May 2017)**
- Louisiana Space Consortium (LaSPACE) Undergraduate Research Assistantship (Student: Anna Katherine Whitehead). Microtopographical Effects on the Differentiation of Mouse Embryonic Stem Cells into Cardiomyocytes. **Funded: \$6,000 (August 2015-August 2016)**
- Louisiana Board of Regents Enhancement Grant. Fluorescence Imaging for Undergraduate Cell and Molecular Biology. Co-PIs: Dr. Rebecca Giorno & Dr. Patrick Hindmarsh. **Funded: \$66,000 (June 2015-May 2016)**
- Louisiana Board of Regents Supervised Undergraduate Research Experience (SURE) (Student: Demi Sandel). The Role of Notch Signaling in Mesenchymal Stem Cells. **Funded: \$5,000 (January 2016-December 2016)**
- Louisiana Board of Regents, Pilot Fund Proposal. The Role of Mediator in Regulating the Cell State of Mesenchymal Stem Cells. **Funded: \$10,000 (January 2014-December 2014)**

I hope that this document has demonstrated my passion for exposing our students to a quality, interdisciplinary, engaging educational experience. Over the years this has been achieved through a team-taught course (Bioethics taught by myself and Dr. Jeremy Mhire), participating in interdisciplinary research (collaborations between my lab and Dr. Mary Caldorera-Moore's lab), practicing written and oral communication skills (in the classroom and at research conferences), encouraging interaction between the art and sciences (in digital painting and pre-medical illustration internships), and introducing colleagues across campus and in the community to find new partnerships and experiences for our students (a recent introduction over coffee between the Lincoln Health Foundation and Dr. Kirk St. Amant to create new projects for students interested in technical communication and usability). I am so proud of what my students have achieved and look forward to the impact I will continue to have on Louisiana Tech students in the future. Thank you for your consideration!