

MENTORS OF THE YEAR

Dr. Leonardo de la Fuente by Elise Mann

"The concepts learned through undergraduate research experiences are applicable beyond the practice of research itself," Dr. Leonardo De La Fuente explains. "Science is based on observations and evidence. Therefore, students must learn how to pay attention, answer questions, and recognize what they do not know." De La Fuente strives to teach his students concepts that apply outside of the laboratory. According to De La Fuente, research challenges students by forcing full knowledge and understanding of a subject on a deep level. Not only does research provide students with opportunities to gain further knowledge about a particular topic, but also provides opportunities for students to gain professional skills.

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"I place a huge emphasis on the scientific process," De La Fuente claims. "Learning how to perform an experiment, how to control for certain factors, and understanding what is being studied and how to study it is important and the concepts can be applied to any aspect of life." Professor De La Fuente's passion for undergraduate research is a result of his own positive research experience as an undergraduate student. As a student, De La Fuente worked with bacteria that are beneficial to plants. Through his coursework, he became intrigued with the processes of disease and infection.

Originally, De La Fuente researched disease relevant to humans and animals. Killing mice, however, disturbed him. "It was sad to me to kill the mice," De La Fuente somberly expresses. "I decided to redirect my research focus to bacteria that affects plants." At Auburn, De La Fuente continues to focus his research on plant bacteria, specifically, bacteria that affect the plant's vascular system. The goal of his research is to understand how infection occurs and what can be done to help control disease.

"Discussions, presentations, and publications were very exciting to me as an undergraduate student," Dr. De La Fuente states. "I want to give students at Auburn the same opportunities that I was given so that they can experience the same excitement that I did." De La Fuente also notes that he loved attending conferences as an undergraduate student. "I was in awe at the people, the research, and the conversations at conferences." De La Fuente laughs as he comments, "I had very few presentations as an undergraduate student. I was so excited about my first poster presentation, but it went horribly and was definitely a learning experience. My poster was mainly all text and

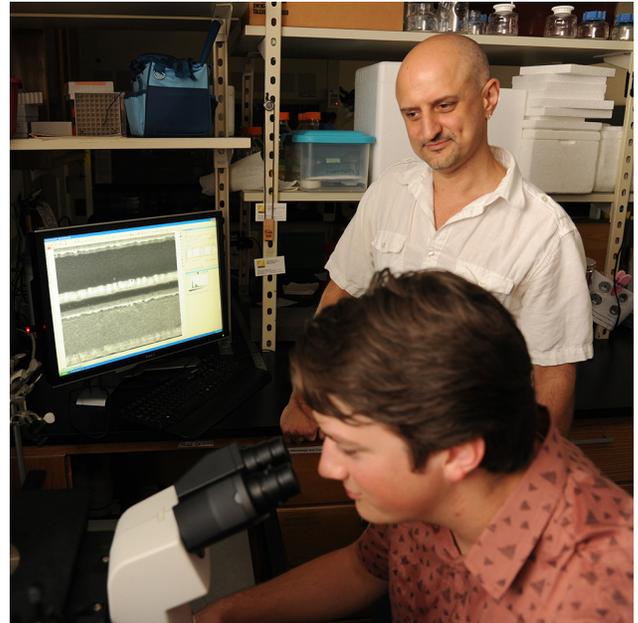


Photo: Dr. Leonardo de la Fuente mentoring an undergraduate student in his lab.

extremely boring to my viewers. You learn, however, that each conference, presentation, and discussion improves with practice and experience. However, I learned a very valuable lesson that day of my first poster presentation. People do not like to read large blocks of research text. Posters should include figures that are eye appealing or the poster will not attract any attention."

Dr. De La Fuente takes pride in the achievements of his

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undergraduate students. When asked what he enjoys most about being a mentor, De La Fuente smiles and states that he enjoys watching his students present at conferences. "I feel as if it is my own child presenting. It is a wonderful feeling to know how hard they have worked and how much they have learned. I am proud of them as they present their material and answer challenging questions." To De La Fuente, being a mentor is rewarding because he sees the effect of his mentorship on his students. He understands that the lessons and teachings in the lab are far more important than the subject itself that they are studying. "It is important for students to engage in research. The skills and concepts learned by involvement in research are important, regardless of the student's future plans."

Dr. Elizabeth Lipke by Elise Mann



Photo: Dr. Elizabeth Lipke in her lab mentoring two undergraduate students.

Dr. Lipke's immense love for research is evident. Lipke first got involved in research as an undergraduate at Johns Hopkins University. She now mentors undergraduates in research on tissue engineering. According to Lipke, she and her research team "build the dorm rooms for the cells leaving their home town." In other words, she and her students create environments that provide cells with the scaffolding necessary to carry out the same functions that they normally would in the body. The tissues engineered in Dr. Lipke's lab provide a suitable environment for cells. When the engineered environments are similar to the natural ones, the cells will act in the same manner as they would in the body. After the environments are created, the cells of the engineered tissue are tested with different biofactors, such as electrical conductivity and density.

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Currently, Professor Lipke works with five undergraduate students. Her goal is to help them gain a good perspective not only of how research is done in the lab, but also of how the small contributions of each researcher together contribute to overall improvements. Lipke remarked that although one person might win a noble prize, there are many people involved in the discovery of something award winning. "Success is defined in small steps," Lipke states. "Small steps lead to larger successes over time." Lipke aims for her undergraduate students to realize that the work they are doing, no matter how small the contribution, is valuable and, with other contributions, can be life changing. With this idea in mind, students are encouraged to continue working

through the obstacles they face while conducting research. "Research is a lot about failing well," Lipke remarked. "Sometimes things move very quickly, but sometimes things move slowly. Problems cannot always be solved the way that they are first attempted." Lipke hopes that students understand that research takes time and patience. She aims for her students to develop persistency and willingness to take risks and completely change the direction of a project, if needed.

When asked what she found most beneficial about serving as a mentor, Lipke said, "Watching those you have worked with achieve their goals." She enjoys understanding her student's passions and helping them make strides toward achieving what they want. "Seeing people achieve their goal, or even progress on the path to achieving their goal, is the biggest reward to me." Lipke explained that, as a mentor, one needs to understand the student's ambitions and look at that goal from the student's perspective. She adds that one must also consider the student's skill set. "Understanding both components will help you, as a mentor, serve your student in the most beneficial way to them and the research project."

Lipke expressed that she has learned a lot from the her own research mentors. She credits Professors Duke and Davis, both at Auburn, with teaching her a lot about being a mentor and serving students in the best way possible. For future students looking to get involved in research, Dr. Lipke stresses the importance of persistency. "You have to be persistent," Dr. Lipke expressed. "You cannot expect as an undergraduate that just because a faculty member did not email you back the first time you contacted them that they did not want to talk to you. You have to make an effort to network and pursue what you want to do."