

Spring 4-1-2018

Jo Sias Daniel: Professor of Civil and Environmental Engineering

Brigid C. Casellini

University of New Hampshire, Durham

Follow this and additional works at: https://scholars.unh.edu/inquiry_2018

Recommended Citation

Casellini, Brigid C., "Jo Sias Daniel: Professor of Civil and Environmental Engineering" (2018). *Inquiry Journal*. 11.
https://scholars.unh.edu/inquiry_2018/11

This Mentor Highlights is brought to you for free and open access by the Inquiry Journal at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in Inquiry Journal 2018 by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact nicole.hentz@unh.edu.



Mentor Highlight

Jo Sias Daniel

—Brigid C. Casellini

Jo Sias Daniel is a professor of civil and environmental engineering at the University of New Hampshire. Below is a correspondence with Dr. Daniel about her own research and her mentoring experiences with undergraduate students.

Inquiry: What is your area of research? Did your undergraduate studies point you toward this topic? What interests you most about it?

My research is focused on asphalt concrete materials and pavements, primarily material characterization in the laboratory. Recently I have begun looking at the impacts of climate change on pavements. During my undergraduate work at UNH, I was involved in several research projects with faculty in the structures and materials areas and really enjoyed the challenge of research. I participated in a National Science Foundation Research Experience for Undergraduates program at North Carolina State University the summer after my junior year and was assigned to a faculty member that worked on asphalt concrete. I did not have much experience with asphalt concrete prior to that, and really enjoyed learning about the complexities of the material behavior and the challenges in understanding and predicting how the materials behave. After that summer, I decided I wanted to continue on to graduate school and continue to work with asphalt concrete. I'm still excited about the challenges posed by asphalt concrete because of the variation in materials that are used and changing environment/climate and those impacts on the performance of roadways. I find the asphalt pavement and materials area very interesting because there is the opportunity to work on fundamental projects that generate new knowledge and work on projects with stakeholders (such as departments of transportation and local town agencies) that can be quickly implemented and improve practice.



Jo Sias Daniel

Inquiry: What is the purpose of a mentoring relationship? What should the student and you gain from it?

I approach a mentoring relationship with a student as an opportunity for the student to gain specific knowledge in the field, but also to learn about the process of conducting research and communicating results effectively. I believe the students achieve a level of expertise and understanding that they would not get through typical coursework, but perhaps more importantly, they get to practice and develop a thought process and strategy for solving problems. This skill development translates beyond research in a particular field and students can apply what they've learned in many different areas. As a mentor I gain some incremental knowledge in a particular research project, but more importantly, I get immense satisfaction from watching a student grow and respond to challenges through the process of conducting research. I also get to watch them have fun. This gives students an appreciation of the complexities involved in materials and testing and evaluation, but also gets them thinking about the practical implementation of the work and how it can help make changes for the better.

Inquiry: Please describe one or two memorable mentoring experiences or mentees.

I've had many excellent mentoring experiences and worked with a range of students over the last fifteen years. I've had a senior chemistry major approach me to do a master's degree in asphalt materials, and dedicate herself to significant background coursework before completing her thesis in the same amount of time that engineering major students finish a full thesis. Another memorable mentee was a very gifted first-year student who I was introduced to via a colleague. She was also interested in the materials area and she began working in the lab for me after her freshman year. She immediately became one of the best students in the laboratory and during her senior year, she was training incoming PhD students. She's now in a PhD program at my graduate alma mater, NCSU. I find that most of the students I've worked with are excited by the work in the laboratory and find great pride in what they do. I am proud of all of them and am excited to see their growth and enthusiasm during my time working with them.

Inquiry: Please describe any difficulties or problems you have had in mentoring undergraduates.

I think the most difficult times I've had are when students that I've hired aren't fully invested in the work, and therefore don't put forward their best effort. I have tried various ways to motivate and encourage students in these situations, but in some cases, they find that they're just not interested in the topic area.

Inquiry: We understand that you've co-mentored some undergraduate research projects with your department colleague, Eshan Dave (including the project of *Inquiry* author Chris DeCarlo). How does a collaborative co-mentoring experience differ from the more traditional mentoring model?

Dr. Dave and I make a great team mentoring both undergraduate and graduate students. I think our success is due to the fact that we have the same values and want to see our students excel and thrive. I think that collaborative co-mentoring requires good communication between the mentors

and requires more coordination than a traditional mentoring model. But it can be a great experience for the students when it works well.

Inquiry: What advice or tips would you give a faculty member new to undergraduate mentoring?

I would encourage faculty to not hesitate to give it a try and to remember that you're not going to be perfect and neither are the students. The key is that you're willing to invest the time and make sure there is clear, open communication both ways. Every student is different, and as your research develops or changes, you will change as well. There will be frustrating times, but the rewards that you get watching how the experience can transform students far outweigh those. And most of all, make sure both you and the student(s) are having fun.

Copyright 2018, Brigid C. Casellini