

ON THE SHOULDERS OF GIANTS

Susan E. Barbaro, Ph.D., Associate Professor of Biology,
Biology Department Coordinator

Michelle Marrone
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Photo by Jodie Andruskevich

Dr. Susan Barbaro found a new academic home 13 years ago when she accepted a position in Rivier's biology department. An educator and active researcher, she had completed a major water studies research project just prior to joining the University and was eager to return to teaching. Finding a position that would allow her to teach and to continue her research was the goal, but institutional fit was also a major consideration. "I based my decision on the University's well-articulated mission and the quality of people I met while interviewing," says Dr. Barbaro.

The move required her to reassess her personal research pursuits; however, engagement with students has provided new perspectives and opportunities. "As I have been broadening my interests, I have included students in my projects, and they have contributed to redefining my research."

That research takes place inside the laboratory and in the field helping students to learn and to develop a passion for science. “I love the ‘aha’ moments, which come in two categories,” says Dr. Barbaro. “The first category is the ‘Come to Understanding’ or ‘Making Connections’ moment and is recognized when students say things like: ‘I see it.’ ‘I get it now.’ ‘So that’s how that works.’ The other ‘aha’ category is what I call the ‘Getting Into It’ moment and sounds like this: ‘Wow, that’s cool,’ ‘Awesome,’ and ‘I love this.’ When these two moments come together, I feel like I have done my job.”

An ardent believer in hands-on learning, Dr. Barbaro’s students conduct field research in the U.S. and other countries. They have taken part in her personal research projects at the Nissitissit River in New Hampshire, for which she serves as a trustee with the Nissitissit River Land Trust. In 2013, Dr. Barbaro accompanied a group of students to Haiti where they conducted a safe drinking water study analyzing water samples for organisms associated with poor sanitation. She is preparing to take another student group to Canada in 2017 to introduce them to the geology and flora of the region and to test water retrieved from various locations that extend from Niagara Falls to Georgian Bay.

Dr. Barbaro works collaboratively with biology majors to plan and conduct their own research projects as well, which are required for successful completion of their degree. In some cases, students apply for grant funds to support their research or present their results at regional conferences. “By conducting these individual research projects, students experience many facets of biological research and discover which aspects they enjoy most,” explains Dr. Barbaro. “It helps prepare them for their first professional positions and to make decisions about where they want to take their careers.”

In 2016, Dr. Barbaro authored a grant which resulted in a \$650,000 National Science Foundation STEM grant award for Rivier’s biology department. The grant will provide support for academically talented students from underrepresented groups. “There is a significant attrition rate for women and minorities in the sciences, due in large part to a lack of appropriate support systems,” says Dr. Barbaro. “I believe the strength of Rivier’s current biology program was instrumental in securing this grant; these funds will enable us to once again elevate the student experience.”

Grant funds will establish a program titled ARGYLES—Attract, Retain, and Graduate Young Life Scientists. The program acknowledges that education and careers are the result of many support systems—the collective body of knowledge generated by others, financial assistance, the guidance of mentors, and collaboration with professors, professionals, and peers.

Dr. Barbaro sees community building as a major component of ARGYLES’ success. “During my journey to becoming a biologist, I have been blessed to have known (and know), been mentored by, and have worked alongside many generous individuals who have inspired, motivated, and cultivated my interest in science: my parents, husband, grades 5 and 10 science teachers, undergraduate supervisor, graduate supervisors, colleagues—so many people,” she shares.

A network of strong support motivates students to do the hard work necessary to become accomplished scientists. “The concepts that tie together life can be complex and difficult to understand,” says Dr. Barbaro. “To become familiar with these concepts, time and hard work are required. Applying the concepts adds additional complexity to the learning process.” She believes the most valuable lesson she can teach her students is to be patient. “As scientists, we are obliged to be accurate and unbiased. Impatience can lead to mistakes or missing something important.”

Dr. Barbaro believes everyone’s success—especially her own—is “built on the shoulders of giants.” “What I value most about my Rivier experience are the relationships I have forged with other community members. My colleagues have been generous to me: they have befriended me, mentored me, and helped support my efforts to be the best educator that I can be. Our talented staff members have collaborated with me and work hard to maintain and advance the University’s mission. The students

have been appreciative of my efforts made on their behalf, and I appreciate what they have done for me. What I am most grateful for is this community.” ■



“If I have seen further than others, it is by standing on the shoulders of giants.”

- Sir Isaac Newton

Bio: Dr. Susan E. Barbaro

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B.S., Biology, Concordia University, Montreal, Quebec, Canada

Associate Professor of Biology

- Department Coordinator, Biology
- Chairperson, Animal Review Board
- Director, Women’s Studies Committee
- Faculty Advisor, Biology Club
- Member, Undergraduate Curriculum Committee

Professional and Community Organizations

- Trustee, Nissitissit River Land Trust
- Member, American Society of Microbiologists

Specialties and Research Interests

- Environmental Microbiology
- Environmental Science
- Medical Microbiology
- Ecology

Classes Taught

- General Biology
- Medical Microbiology
- General Microbiology
- Ecology
- Environmental and Applied Microbiology
- Immunology
- Parasitology
- Life under the Microscope
- Stewards of the Living World
- Environmental Health

Publications

Dr. Barbaro has been published and presented at numerous conferences and workshops throughout the U.S. and internationally. A complete list is included in her Rivier University online faculty biography at www.rivier.edu/sbarbaro.