

BIOLOGICAL SCIENCES

NEWSLETTER



Fall 2017 Volume 6, Issue 1



HIGHLIGHTS FOR Fall 2017

- Dr. Dianne Baker awarded National Science Foundation grant.
- Student wins research grant from the Virginia Academy of Science.
- Site preparation begins for Jepson Science Center expansion and renovation project.

DR. DIANNE BAKER AWARDED MAJOR NATIONAL SCIENCE FOUNDATION GRANT

Dr. Dianne Baker has been awarded a \$996,000 National Science Foundation S-STEM Program (Scholarships in Science, Technology, Engineering, and Mathematics) grant to create a recruitment and retention program for twenty high achieving low-income students. The grant's co-director is Dr. Nicole Crowder, Department of Chemistry. Participating students will receive four years of substantial scholarship funding and an immersive, research-focused educational experience. Beginning in the fall of 2018, students will arrive in two cohorts of ten each. During the summer before they

matriculate, they will engage in a five-week long research experience under the supervision of a faculty mentor. Their first fall semester will bring science-based First Year Seminars and peer-led study sessions. During subsequent summers, the students will participate in the Summer Science Institute research program to deepen their research skills and fluency with the scientific method and further build their relationships with faculty mentors. S-STEM's objectives include not only to recruit more talented, low-income students into STEM professions, but to improve science education.

Therefore, the faculty involved with delivery of the Jepson Scholars program will track student success data and disseminate their findings. Congratulations to Dr. Baker, and the department looks forward to working with the first batch of these exceptional students next fall!



TWO STUDENTS WIN 2017 WILLIAM A. CASTLE AWARD

For the second year in a row, the department recognized two outstanding graduating seniors with the William A. Castle Award. Both **Katherine (Kit) Qualls** and **Emily Ferguson**, Class of 2017, graduated with exemplary academic and leadership records. Kit was the President of the Biology Student Organization and represented students at departmental faculty meetings. In addition to her busy class schedule, she immersed herself in independent research with **Dr. Steve Gallik**. During summers, Kit also participated several competitive off-campus research and internship programs hosted by NASA

and the University of Cincinnati (U.Cinn.) Kit is currently a Ph.D. student in Molecular, Cellular, and Biochemical Pharmacology at U.Cinn.

Emily Ferguson was involved with neuroscience research under the mentorship of **Dr. Parrish Waters**. "Emily took on a very difficult project and undauntedly recruited a multidisciplinary team of students, who helped her to develop a functional touchscreen that can assess cognition in laboratory rats," said Dr. Waters. She also presented her research at several national meetings while a UMW student and frequently volunteered for Office of Admissions recruitment activities.



Kit Qualls, one of two Castle Award winners in 2017.

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2017 STUDENT SCHOLARSHIP WINNERS!

The department distributed nearly \$16,000 in scholarships to six different students for the 2017-18 academic year! Most scholarships defray tuition and fees, while the Piscopo Rodgers Fellowship II provides funding for research equipment and supplies. Students apply for Biological Sciences sponsored scholarships through the university's Online Scholarship Manager, maintained by the Office of Financial Aid. Students majoring in either biology or environmental science are eligible for the Thyra V. Valade Conservation Leadership Scholarship.

Congratulations to the following!

- **Jenifer Grove and Kaitlyn (Kait) Brogan:** Irene Piscopo Rodgers '59 and James D. Rodgers Student Research Fellowship II
- **Laura Mangano:** Debra Stanley Leap '72 Scholarship in Biology
- **Sarah Roche:** Biology Scholarship
- **Kait Brogan:** Biology Scholarship
- **Juliette Guilloux:** Rebecca Culbertson Stuart Memorial Scholarship
- **Isabel Faust:** Thyra V. Valade Conservation Leadership Scholarship



Juliette Guilloux, Rebecca Culbertson Stuart Scholarship winner, is a double major in biology and music. In addition to her interests in medicine, she is also an expert violinist. "I am so grateful for this scholarship! Because of it, I will be able to graduate from UMW with little debt to worry about. I can't wait to go out into the world and see what life has in stock for me!"

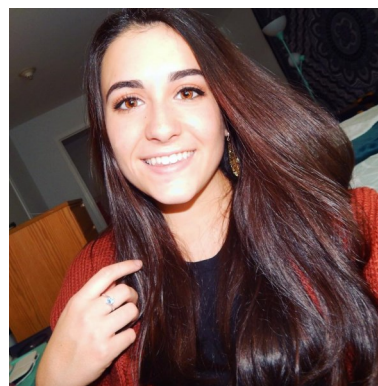
Isabel Faust, winner of the Valade Conservation Leadership Scholarship, is an environmental science major. She will apply her award to a four month-long tropical ecology and conservation program in Australia.



Kait Brogan (left) and **Sarah Roche**, Biology Scholarship winners. Kait is double-majoring in biology and geography and is additionally completing the GIS certificate program. Sarah is interested in pursuing a Ph.D. in molecular biology or neuroscience.



Jen Grove, one of two Irene Piscopo Rodgers Fellowship II awardees, is conducting independent research under the supervision of Dr. Parrish Waters.



Laura Mangano, recipient of the Debra Stanley Leap Scholarship in Biology. Laura also won last year's John A Cope Scholarship, which rotates among the natural sciences departments.

JEPSON RENOVATION AND EXPANSION PROJECT BEGINS!

After a 2-year delay, ground is being prepared for the Jepson Science Center's approximately 70,000 sq-ft expansion and renovation project. The project will begin with a 30,000 sq-ft addition that will house the Departments of Physics and Earth and Environmental Sciences. It will extend into the space currently occupied by the building's parking lot. The new addition will also contain several common classrooms, one of which will be equipped with interactive technology to facilitate student-centered learning approaches. "For several years, our faculty have had to teach their classes in several different buildings across campus. These classrooms will allow more of us to keep our classes in Jepson," said Dr. Andrew Dolby, former Biological Sciences department chair. Finally, the new space will include an upgraded and expanded field equipment room con-

veniently located near the loading dock. It will provide much needed extra capacity to keep field gear organized and well maintained.

The project's second phase will bring important reorganization of the department's space. Human anatomy, human physiology, and general biology laboratories will be grouped together on the first floor, along with a common equipment room. On the third floor, several walls will be knocked down to create an enlarged molecular biology lab to allow collaborative work by different teams of students and their faculty supervisors. All will have more convenient access to large equipment such as freezers, spectrophotometers, and centrifuges as they complete their work. The third floor will also feature a new ecology research lab, with an adjoining aquatic animal vivarium, and a second tissue culture lab. Lastly, the fourth floor will house a redesigned plant physiology suite.



Closure of the Jepson parking lot marks the beginning of site prep for the building's expansion and renovation work. The project will take approximately two years to complete.

A new phytotron will be constructed adjacent to the existing greenhouse to allow convenient access to both research space and plant growth facilities.

The department looks forward to updated and more efficient work spaces. In addition, more areas for informal interaction and small-group meetings will foster a new level of community in the sciences.

STUDENT WINS VIRGINIA ACADEMY OF SCIENCE GRANT

Senior biology major **Alex Piercy** won a \$750 research grant for her research project titled, "The effects of cognitive exercise on senescent cognitive decline in mice," at the fall Virginia Academy of Science (VAS) Undergraduate Research Meeting and grant competition held in October. Alex is interested in memory loss, and her research project is being mentored by **Dr. Parish Waters**. Next year, she plans to attend graduate school to earn a Doctorate degree in Physical Therapy. The VAS has held its Undergraduate Research Meeting each year since 2001. This fall it was hosted by Hampton-Sydney College, and in addition to the usual grant competition, it featured a scientific professionals roundtable to connect undergraduates with employment opportunities in the sciences.

FACULTY NOTES

- **Dianne Baker** delivered a presentation titled, "Research, engagement, preparation, and scholarships: initiatives to improve recruitment, retention, and success of students in the sciences at a public liberal arts university" at the Gordon Research Conference on Undergraduate Biology Education Research held at Stonehill College in July. Her presentation was co-authored by Nicole Crowder and Kelli Slunt, Department of Chemistry.
- **Andrew Dolby** was appointed to the Friends of the Rappahannock's Board of Directors in August. His term will be three years.
- **Alan Griffith** gave a presentation titled, "Transforming the Biology Major with Course Based Research" at the Advancing Competence for Experimentation in Biology Network Meeting held in Highlands, N.C. in May. Co-authors on the presentation were **Andrew Dolby, Lynn Lewis, Deborah O'Dell, April Wynn, and Deborah Zies**.
- **Brad Lamphere** and his wife, Marian, welcomed a baby boy, Peter Wren, into the world in April.
- **Deborah Zies** won a grant from the Promoting Active Learning & Mentoring (PALM) network to support her University of Minnesota hosted sabbatical this fall.



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The mission of the biology program at the University of Mary Washington is to provide a strong undergraduate education in the fundamental principles of biology and train students in the basic research methods and techniques used by biologists. The program is designed to prepare undergraduates for future careers in basic life sciences research, teaching and related professions, medicine, dentistry, and other allied health fields.

For further information about the biology program, please contact Lynn Lewis, Chair, Department of Biological Sciences, at llewis@umw.edu or 540-654-1415.



SPECIAL THANKS TO OUR RECENT UMW FOUNDATION AND SCHOLARSHIP DONORS:

- Sally Hurt, Midlothian, VA.
- Mary Washington Elderstudy
- Roberta Newton, Greensboro, NC.
- Larry G. Valade, Fredericksburg, VA

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Questions about this newsletter? Contact the editor: Andrew Dolby at adolby@umw.edu

UMW

GROWING WEEDS WITH A PURPOSE!

It's an exciting time to be a weed at the University of Mary Washington - the department has extended its mission to not only help students grow and develop, but to help weeds grow and develop, and these weeds have a purpose! This new capability is now possible thanks to the purchase of a Percival AR142L Arabidopsis Growth Chamber funded by the state's Equipment Trust Fund. This chamber strictly controls the temperature, light level, and humidity the *Arabidopsis thaliana* plants are exposed to when growing. Regulation of such environmental variables is critical for conducting genetic research on this model plant organism. It allows students in General Genetics to examine

the relationships between genotype and phenotype and research students to examine flower and ovule defects to identify genes critical for the development of these organs. Finally, it will also allow students in the Research Intensive Plant Molecular Biology course (Spring 2018) to examine the effects various genetic mutations have on plants' ability to grow and respond to environmental stress. The Percival chamber has already produced student-generated data, and these students have presented their research at the UMW Summer Science Institute and Virginia Academy of Science meetings. So really, what an exciting time to be a weed or a biology student at UMW!

-April Wynn



Arabidopsis plants growing happily in the department's new Percival growth chamber.