

Department of Biological Sciences Newsletter

University of Mary Washington



Some Highlights for 2012-13

- Biology students awarded more than \$15,000 in research and travel funding from the College of Arts and Sciences Dean's Office in 2012-13.
- A new minor in neuroscience was approved by the University Faculty Council. Students will take Cellular Biology and Neurobiology, along with several neuroscience courses from the Psychology Department to complete the minor.
- Biology has a new web site: <http://cas.umw.edu/biology>

Students Win External Research Awards

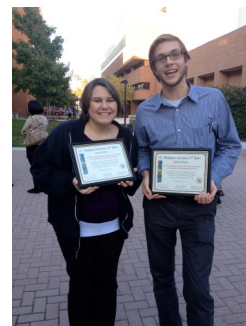
Ryan Green won a \$500 research grant at the Virginia Academy of Sciences Undergraduate Research meeting held at J. Sargeant Reynolds Community College in October. The title of his project is "A Study of Chloroquine's Antiretroviral Characteristics". He is examining the efficacy of the antimalarial drug chloroquine as an anti-retroviral by comparing the amount of Murine Mammary Tumor Virus production in chloroquine treated and control tissue culture. Secondly, he is studying the hormonal activation of Murine Mammary Tumor Virus by measuring which hormonal treatments, dexamethasone, progesterone, or corticosterone leads to the

greatest virus production in tissue culture. Ryan's faculty mentor is **Dr. Lynn Lewis**.

Sarah Marzec and **Dan Browne** each won 1st place awards at the 15th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences at the University of Maryland, Baltimore County also in October. Their projects focus on nematode phylogeny and identification of unknown nematode species. Their faculty mentor is **Dr. Theresa Grana**.



Ryan Green



Sarah Marzec and Dan Browne

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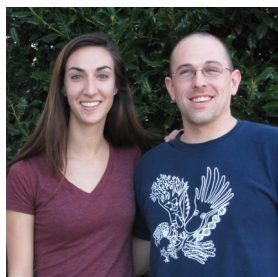
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Other student presentations at scientific conferences in 2012-13

- **Kathleen Blevins**. Bacteriophage-mediated antibiotic resistance. Virginia Branch of the American Society of Microbiology, Norfolk, Virginia.
- **Dan Browne**. Effects of the herbicide atrazine on gene expression in the zebrafish, *Danio rerio*: a microarray analysis. Society for Integrative & Comparative Biology. San Francisco, California.
- **Mike Carlo**. Effect of handling time on corticosterone and heat shock protein 60 levels in Tufted Titmouse, *Baeolophus bicolor*. Wilson Ornithological Society, Williamsburg, Virginia.
- **Abby Kimmitt**. Differential courtship effort by mated and unmated males in a free-living songbird. Chi Beta Phi National Meeting, Elkins, West Virginia.
- **Margaret Walker**. Mortality of eastern oysters as prey of blue crabs: effects of size and reef complexity. Chi Beta Phi National Meeting. Elkins, West Virginia.



Kandra Selby and Mike Carlo, winners of the Biology Scholarship



Ryan Green, winner of the Rebecca Culbertson Stuart Scholarship

"This scholarship really increased my confidence and motivation to learn ornithology."

Meet the 2012-13 Department Scholarship Winners

On an annual basis, the department awards one Rebecca Culbertson Stuart Scholarship and two Biology Scholarships. Each scholarship is worth approximately \$3,000, and recipients are chosen by the department's faculty based on their grade point averages, extracurricular activities, and educational and career aspirations. The two Biology Scholarships were awarded to **Kandra Selby** and **Mike Carlo**. Kandra will be entering Elon University's Doctor of Physical Therapy program

next fall, and Mike has been accepted into Clemson University's Ph.D. program in Biology. The Stuart Scholarship went to **Ryan Green**. Ryan is applying to medical schools.

In addition, **Alexis Pennings** won the Thyra V. Valade Conservation Leadership Scholarship. This \$1,500 award provides support for students to pursue educational experiences in Latin America. Alexis worked as a veterinary assistant at a wildlife rehabilitation center in Belize during the winter break.



Alexis Pennings with Gomez the iguana in Belize.

Student Wins External Scholarship

Chloe Fusselman received the 2012 Virginia Society of Ornithology's summer school scholarship. This \$500 scholarship is awarded each year to a student taking a college-level ornithology course during summer at a Virginia institution. Chloe took ornithology with **Dr. Andrew Dolby** last summer. "This scholarship really increased my confidence and motivation to learn ornithology," said Ms. Fusselman.

Chloe is preparing for a career in physical therapy, but after taking ornithology, plans to always keep her eyes on the birds. Her father is an avid birder, and since taking ornithology, Chloe has already taken many birding walks with him around the family's Charlottesville-area farm. "I look forward to continuing to share this activity with my dad."



Chloe Fusselman, winner of the Virginia Society of Ornithology's summer scholarship



Natalie Might is headed for Georgetown University after graduation in May.

Good news for spring graduates and recent alumni comes rolling in

Examples of students who have been offered admission to graduate programs for fall 2013 :

- **Mike Carlo** - Clemson University, Ph.D., Biology.
- **Abby Kimmitt** - Indiana University, Ph.D., Ecology, Evolution, and Behavior; Auburn University, Ph.D., Biology; Arizona State University, Ph.D., Biology.
- **Kyle McCartt** (Class of 2011) - University of Pennsylvania, Dental Medicine Program.
- **Natalie Might** - Georgetown University, M.S., Biohazardous Threat Agents and Emerging Infectious Diseases.
- **Kandra Selby** - Duke, Elon, & Virginia Commonwealth Universities, Doctor of Physical Therapy.

Speaker Series Raises Career Awareness

In response to student feedback, the department is hosting a diverse [schedule of career speakers](#) this year. Organized primarily by **Dr. Deborah O'Dell** and **Mike Killian**, this year's presenters have included recruiters from allied health schools, professionals from the FBI, National Park Service, and the Nature Conservancy, as well as former students and the university's own office of career services. The purpose of this speaker series is to increase awareness about career options

in the biological sciences and to help prepare students to find and apply for jobs or enter graduate school. Topics have ranged from "What can you do with a biology degree?" to "How to get paid to save the world or at least have fun trying." Among last fall's speakers were **Jesse Sine** and **Brittany Abbatiello, Class of 2012**. Jesse and Brittany are both currently participating in the highly competitive National Institutes of Health (NIH) internship program. Sine is working with nanoparticles

and their potential application as cancer drug delivery agents and offered her assistance to students who are interested in the NIH.



The Nature Conservancy's Jay Odell served as a career speaker this year.

"I would not have gotten my NIH research position without the preparation I received at UMW." -Jessica Sine, Class of 2012

Theresa Grana wins Jepson Fellowship

Dr. Theresa Grana, Assistant Professor of Biology, has been named a Jepson Fellow for the 2013-14 academic year. These prestigious awards allow faculty to pursue promising lines of research. Dr. Grana will receive a teaching load reduction so that she can further develop her research on nematodes that are new to science. According to Dr. Grana, "Finding new nematodes and cataloging distribution of nematode species

are major goals of my research program. In the last few years, my students and I have discovered new species of nematodes. One aim of this fellowship is to formally describe a new species for publication. Experience gained in the process will be used to guide future students in additional species descriptions. A second aim of this fellowship is to fully develop a semester-long introductory biology laboratory experi-

ence where students partake in an authentic, original research project. Student participation is key to Dr. Grana's research program, and she sponsors several independent research students per year. They regularly present their data at scientific conferences and have been recognized for their excellent work.



Dr. Theresa Grana, Jepson Fellow for 2012-13.

Faculty Notes

- **Andrew Dolby** is completing his two-year term as President of the Virginia Society of Ornithology.
- **Alan Griffith** presented the paper "*Aeschynomene virginica* (sensitive joint-vetch), a federally threatened plant: love it or leave it? A case study for zero extinction vs. conservation triage" at the UMW Environmental Studies Research Colloquium in March.
- **Kathy Loesser-Casey** and **Lynn Lewis** presented a joint paper with James Madison University colleagues "Isolation of novel *Bacillus* bacteriophages: distinctive morphologic and genomic features" at the Virginia Branch of the American Society for Microbiology Annual Meeting in Norfolk in November. **Dr. Loesser-Casey** additionally co-authored a publication in the *Journal of Morphology* titled "Description and scaling of pectoral muscles in Ictalurid catfishes" with collaborators from Virginia Commonwealth University.
- **Deborah O'Dell** is now President-elect of the Virginia Academy of Science and presided over VAS's fall Undergraduate Research meeting in October.
- **Werner Wieland** presented the paper "Occurrence of *Etheostoma fusiforme* in the York River Basin" at the Annual Meeting of the Southeastern Fisheries Council in New Orleans in November. He also served as a National Science Foundation panelist in January.
- **Deborah Zies** gave the invited keynote speech, Smith-Magenis Syndrome: an investigation of a human genomic disorder, for the Virginia Academy of Science's fall Undergraduate Meeting.



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- Dr. Garrett Seeba, New Orleans, LA
- Elizabeth Smith Storm, Spotsylvania, VA
- UMW Elderstudy

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 Andrew Dolby, Chair, Department of Biological Sciences, email: adolby@umw.edu phone: 540-654-1420



cas.umw.edu/biology

You Spin Me 'Round

The department acquired a new hotrod this year thanks to the state's Equipment Trust Fund. Although you won't see it on the race track, this one can go from 0 to 90,000 rpm in 60 seconds and pull 694,000 g! The Beckman Optima XE ultracentrifuge was installed in January, and according to frequent user **Dr. Steve Gallik**, is top of the line in terms of its capabilities. It will be used routinely to separate cell nuclei and other organelles such as mitochondria and ribosomes. However, it will also be capable of pelleting materials as fine as viruses and macromolecules including proteins, DNA, and RNA. The ultracentrifuge will be used by classes including Cellular Biology, Virology, and Biology and Biochemistry of Proteins and will feature prominently in individual student projects which require isolation and processing of fine biological materials.

