Graduate Research and Presentation (RAP) Grant Program

The Office of Graduate Studies and Research provides research grants, up to $500, to help support graduate students develop research and scholarly projects with a faculty supervisor and present their projects at various conferences and meetings. The program enables students to receive recognition for their work and provides networking opportunities and professional development in their field of study.

Population Trends of Forest Interior Birds of the Lower Delmarva Peninsula

Marshall Boyd, Applied Biology (Fall & Spring Semester Awards)
Chandler S. Robbins et al. (1989) studied forest habitat requirements of breeding bird species in the Mid-Atlantic states from 1979-1983, using point counts to sample bird communities. Boyd is re-sampling each point from the Robbins’ study within the Lower Eastern Shore of Maryland. Forests were sampled during the breeding season from mid-May through the beginning of July in 2012 and 2013. Each point was visited three times per season, but only sampled once per day. Forest variables quantify the habitat of the study forests in accordance with the parameters set by the study. Vegetation surveys measure several variables and are conducted once at each candidate forest.

The Writing Center as the Bridge: How To Create Exigency for Writing and Stabilize a Writing Center; or, A Call for Workplace Writing in the Writing Center

Alexandra Guerriero, English
Guerriero explores if writing center workshops with a focus on workplace writing help to develop student exigency for writing and if outside community interaction with the writing center helps create a more stable environment for a writing center in the university. She is surveying students at York College to assess their perceptions of writing and writing needs and purposes, and whether they see transfer from the writing they do in their coursework into their future careers. She is also surveying 40 employers that tend to hire York College graduates to determine what writing and rhetorical concepts new hires with recent college degrees should know.

What Caused the Mennonites of Virginia to Embrace Abstinence on an Institutional Level?

Timothy Harlow, History
Harlow explores how social changes following the Second Great Awakening, which saw a decline in alcohol consumption, interacted with Virginia Mennonites, who had long tolerated moderate use of alcoholic beverages prior to its members embracing prohibition around the turn of the 20th century. Harlow is researching the Eastern Mennonite University archives for church conference minutes and letters between church leaders, and the University’s historical library for copies of the Gospel Herald, the quasi-official church paper, published from the late 1800s. He also explores the Sword and Trumpet, an impatient unofficial magazine arguing for the embrace of fundamentalism.

Altering Microalgal Nutritive Qualities Through the Use of Microbial Symbionts

Stephen Kelly, Applied Biology
Kelly’s research seeks to further study the relationship between pink-pigmented facultative methylophants (PFPM) and microalgae, an important food source for larval shellfish such as oysters and clams. Kelly is using over-producing strains of PFPM to increase nutrient levels in microalgae, which would then be used as feedstock for oyster larvae. If higher levels of vitamin B12 can be produced in microalgae through the use of PFPM, it could reduce the need for expensive B12 supplementation by hatcheries, and may help improve larval oyster growth. He also is examining the physical association between PFPM and microalgae to determine if the bacteria are attached to the cell surface or free-living in the water.

Microsatellite Genotyping and Female Mate Choice in Spring Peeper (Pseudacris crucifer)

Kelsey Mitchell, Applied Biology
Mitchell examines how female mate choice in the spring peeper, a species of North American tree frog, provides a mechanism driving the diversity of animal traits and the genetic basis underlying female preference and mate choice at the individual level. Males produce vocalizations in order to attract a female mate, and the females evaluate these calls to choose a mate. In most frog species, females exhibit strong preferences for specific characteristics of male vocalizations. In addition to male call pitch, Mitchell is testing female preference for other call characteristics, including call duration and call rate to determine whether female choice is operating on a parameter other than pitch.

Collapsing Student Hierarchies: Assessing and Addressing the Needs of Graduate Students in the Writing Center

Molly Phelan, English
Phelan studies whether the graduate students frequenting the SU Writing Center are receiving all the help they need by researching what methods have been used to assist graduate students in writing centers and exploring what aspects of these methods would be helpful at SU. She is researching graduate student needs and their perceptions of the Writing Center. She also explores the services graduate students and professors would like to develop at the Writing Center. Phelan is performing need-assessment surveys of graduate students and faculty, and focus groups of graduate students who frequent the Writing Center and those who do not.
Species Diversity and the Succession of Dung Beetles to Horse Dung on Assateague Island

Elizabeth Rentz, Applied Biology

The objectives of Rentz’s research are to determine the species diversity of dung beetles on Assateague Island throughout the three habitats and to determine whether the dung beetles are attracted to the horse dung on the island. Dung beetles are coprophagous scarabs widely known for feeding on and breeding in mammal dung. There are currently over 160 feral horses on the Maryland side of Assateague Island. As the population of horses has grown, problems with destruction of the island’s natural habitats have been occurring. This overgrazing on the beach grasses could continue to harm the dune habitats if no action is taken.

Developing an In Vitro Assay to Study Angiogenesis Using the Dissected Mouse Aorta

Kavya Shroff, Applied Biology

Shroff is developing an in vitro assay to study angiogenesis using dissected mouse aorta. Angiogenesis is the sprouting of new capillaries from pre-existing vessels, resulting from stimulation of the endothelial cells that line the vessel wall. Due to its potential as a therapeutic target and its participation in numerous pathological conditions, it is important to understand the biochemical and cellular mechanisms that regulate this process. New strategies for treating these diseases involve the regulation of angiogenesis, and in vitro methods such as the one proposed by Shroff are used to screen potential therapies.

HDL Independent Mechanisms of Nicotinic Acid

Joseph Tracy, Applied Biology

A 2001 trial suggested that niacin (nicotinic acid) provided additional protection against atherosclerosis, hardening of the arteries, when added to standard treatment. Tracey suggests that for niacin to be advocated as a potential anti-atherosclerosis treatment, a better understanding of the biochemical and cellular targets is needed. He is using the LDL receptor knockout mouse in combination with a high-fat diet to replicate the disease. In the absence of an LDL receptor, the liver will not be able to remove LDL from the blood stream leading to widespread atherosclerosis. This disease model effectively mimics human atherosclerosis and makes it possible to study niacin’s LDL receptor independent mechanism of action.

Facilitating Basic Writers’ Progress: The Impact of Feedback and Confidence on Student Writing

Kathryn Trantin, English

Trantin proposes a quantitative descriptive study that will serve to identify the styles of teacher feedback that are most conducive to improvements in basic writers’ motivation, self-awareness, confidence and, hence, improved writing. She is studying a basic writing course and monitoring students’ confidence, self-awareness and motivation through surveys and interviews; improvement through graded papers and rubrics; and teacher feedback by coding responses on drafts, rubrics and feedback provided during conferences. She aims to determine what styles of feedback instructors should use to best serve their students’ needs and to identify a relationship between confidence and improvement.

Return to Sender: Authentic Audience and a Haphazard Community of Writers

Jessica Weber, English

Weber’s research focuses on the benefits of community engagement writing events held within the campus community, particularly with the combined efforts of writing centers and student-run extracurricular groups. She posits that these events can produce multiple benefits for students, faculty and the community as a whole. Specifically, she is looking into how students’ senses of audience, purpose and self-efficacy can be improved with this proposed model. Weber is developing her methodology into a portable and potentially sustainable model so that other universities can also explore the benefits of these types of extracurricular programs.

Secondary Metabolite Comparison in the Polyploids of a Dominant Desert Shrub (Larrea tridentata) & Interactions Within a Desert Ecosystem: Utilizing Citizen Science to Investigate the Role of Nordihydroguaiaretic Acid in the Success of the Dominant Shrub (Larrea tridentata)

Kristin Zuravnsky, Applied Biology

Zuravnsky is investigating the role nordihydroguaiaretic acid (NDGA) might play in the survival of L. tridentata in its extreme desert environment. Preliminary data reveals significant correlations between ploidy level, season (temperature) and NDGA concentration from a select few L. tridentata grown in a greenhouse. She is pursuing a two-part project to first analyze field-collected samples from each ploidy collected by Citizen Scientists, and then analyze samples from 30 plants that were maintained in the lab. Zuravnsky is analyzing the lab-collected samples and quantifying the concentrations of NDGA from these samples to serve as a comparison to the natural environment.