

SWOSU Biology Students Participate in Experiential Learning through Summer Research

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Fifteen students from the Department of Biological Sciences at Southwestern Oklahoma State University in Weatherford are engaged in making key discoveries through research this summer.

Each student is being supported, according to departmental chair Dr. Andrea Holgado, because they were selected from a pool of applicants for these competitive positions. The results highlight the caliber of students in the SWOSU Department of Biological Sciences.

- Alfa Abame of Stillwater was selected by Colby College in Waterville, Maine and is currently performing research in South Gondar, Ethiopia. The focus of her investigations is the Cultural, Economic and Ecological Significance of Church Forests.
- Bradley Burke of Norman, Ashley Powers of Loco, Ashna Dhoonmoon of Mauritius, Alina Shrestha of Nepal, and Jesse Velasco of Clinton are conducting research at the University of Oklahoma Health Science Center (OUHSC). All these interns have secured support from the Oklahoma IDeA Network of Biomedical Research Excellence (OK-INBRE).

Burke is working under the mentorship of Dr. Noah S Butler, assistant professor at the Department of Microbiology and Immunology, OUHSC. Burke's research focuses on CD4 T cell-mediated protection against malaria.

Powers is performing research under the mentorship of Dr. Ding and Dr. Ma. Dr. Ding is the principal investigator and Dr. Ma is an adjunct faculty in the Department of Cell Biology, OUHSC. Powers' research project is titled CGMP effects on endoplasmic reticulum calcium channels in cone photoreceptors.

Dhoonmoon is performing research under the supervision of Dr. Karla Rodgers, associate professor, and Dr. Jennifer Byrum, postdoctoral fellow at the Department of Biochemistry and Molecular Biology, OUHSC. Dhoonmoon's research focuses on testing whether RAG2 expression in pre B-cells protects cell viability following genotoxic stress.

Shrestha is being mentored by Dr. David W. Dyer, professor at the Department of Microbiology and Immunology, OUHSC, and Multi-Campus Bioinformatics Education Specialist Jennie Allen, Department of Microbiology and Immunology, OUHSC.

Shrestha's research focuses on predicting the MpeR and MtrR binding sites participating in the Fur regulatory cascade in *Neisseria gonorrhoeae*.

Velasco is working under the mentorship of Dr. Nawajes Mandal, assistant professor at the Department of Ophthalmology, OUHSC. Velasco's summer research aims to characterize the effects of *SPHK1* knockout in mouse neural retina.

- Tyler Mitchum of Minco is performing research at the SWOSU Department of Biological Sciences under the mentorship of Holgado. Mitchum's research focuses on the analysis of autophagy and its effects on the D-type motor neuron circuitry in *unc-33* mutants of *Caenorhabditis elegans*. He is supported by OK-INBRE.
- Bailee Fehring of Sterling, Lindsey Hendricks of Cordell, and Whitnie Holten of Anadarko are performing research at the Department of Biological Sciences, SWOSU, as part of the Summer Mentoring and Research Training (SMaRT) Program funded by the Oklahoma Regents for Higher Education.

Fehring and Hendricks are working under the mentorship of Dr. Rickey Cothran, assistant professor at SWOSU. Their research project studies sublethal effects of pesticides on amphipod life history, physiology and behavior.

Holten is performing research under the supervision of Holgado. Her research project investigates the role of the recycling called autophagy in the development of abnormal neuronal connections.

- Allison Statton of Oklahoma City and Sinthia Youmbi of Cameroon are being supported on an Early Career Fellowship awarded to Cothran by the University of Pittsburgh's Pymatuning Laboratory of Ecology. Cothran and the students are investigating the mechanisms that maintain community structure in lakes.
- Lyly Van of Broken Arrow was selected for the 2016 NSF-REU summer program entitled "Interdisciplinary Approach to Sustainable Biobased Products & Energy Development." She is currently working under the mentorship of Dr. Babu Z. Fathepure, associate professor in the Department of Microbiology and Molecular Genetics at OSU. Van's research project aims to isolate and characterize novel lignin degrading microorganisms from cow and termite guts.
- Rachel Wallace of Mustang is performing an internship at the OKC Zoo. As part of the internship, Wallace will engage in the Texas Horned Lizard Project, learn animal husbandry and help develop public education projects.
- Forrest Witt of Ripley is currently funded via the OCAST intern program to work at Analytical Research Laboratories, OKC. He is performing research and development tasks under the supervision of Dr. Liu and Dr. Vu. Forrest's primary focus is the development of analytical methods for potency and stability of pharmaceutical compounds.

Holgado said the SWOSU Department of Biological Sciences congratulates each of these students and thanks the funding agencies for creating opportunities for research in the life sciences. The students will share their experiences and discoveries at the SWOSU Biology Fall 2016 Student Research Seminar.