



Awards and Recognitions

Devasantosh Mohanty, graduate student in the Department of Biological Sciences was honored with the Nicholas and Anna Ricco Ethics Award at the Honors Day Celebrations on Friday April 21, 2017. This award, which includes a \$1,000 scholarship, promotes intellectual debate and discussion on ethics on UNT campus and is intended to stimulate the applicants to new heights of reasoning and self-discipline. Also honored at the Honors day were undergraduate **Bryan Burton** recipient of the Davidson Honors Scholar and Outstanding First Years Honors Student award, and **Fernando Moreno** recipient of the Joint Admission Medical Program Internship as part of a special Joint Admission Medical Program created by the Texas Legislature to support and encourage highly qualified, economically disadvantaged Texas resident students pursuing a medical education.



Devasantosh Mohanty

Ashley Scott (MS, Biochemistry summer 2017) was awarded a full scholarship to the Ph.D. program at the Max Planck Institute of Human History in Jena, Germany to work with Dr. Christina Warinner. Ashley's MS-research was Co-Directed by Dr. Steve Wolverton (Dept. of Geography and the Environment) and Dr. Barney Venables (Dept. of Biological Sciences). Her thesis focused on development of mass spectrometry-based methods for the identification of ancient proteins extracted from archaeological artifacts and was funded by the National Science Foundation.

Roxana Hughes was awarded \$600 from the Small World Initiative. This award was used to support the travel of undergraduate students Shiloh Terrell and Alexander Diaz, and two BIOL2042 (Microbiology) instructors to the annual meeting of the American Society of Microbiology, which was held in June in New Orleans, LA.

Austin Sivoravong, UNT undergraduate Biology major, was selected as an American Society for Microbiology (ASM) 2017 Undergraduate Research Fellow. This award included a stipend for undergraduate research for the summer of 2017 and a travel stipend to the 2018 ASM Microbe meeting in Atlanta, GA. Austin's research mentor is Dr. Lee Hughes.

Graduate students **Monika Patel** and **Devasanosh Mohanty** received the ICAR fellowship and a Raupe Scholarship to present their research at the 28th International Conference on Arabidopsis Research, which was held in June in St. Louis, MO.

The Department of Biological Sciences held its Annual Outstanding TA and Undergraduate Scholarship Luncheon on April 28 at the Greenhouse Restaurant. The Outstanding Teaching Assistant recipients were graduate students **Syeda Alam, Monika Patel** and **Edmond Rogers**. The David Redden Scholarship recipients were **Melody Paul, Martin Castro, Emma Villegas, David Spears Jr., Francisco Novoa, Macy Sanders, Dalynn Kim, David Abraham, Emmanuel Adeyemo, Amy Tax, Kevin Rivera, and Emmanuel Bakundukize**. This scholarship honors David Redden, who died doing what he loved; teaching. He taught Animal Physiology and was the Pre-Med Advisor for the department. The Tad Lott Scholarship recipient was **Breana Riley**. Tad Lott taught Anatomy and Physiology in the department. The Gladys Crawford Scholarship recipients were **Phuong Nguyen, Anh Trinh, and Abraham Gebremichael**. Gladys Crawford worked for UNT for over 50 years till she retired in 2003. She acted as the sole director of the Medical Technologist program at UNT for much of that time. The Tracy Quay Scholarship recipient was **Meg Van De Walle**. Tracey Lynn Quay was a UNT Alumni who passed away while still young. She dedicated her short life to biomedical research and made essential contributions to the investigation of tumor necrosis factor (TNF), a cytokine that mediated programmed cell death and the immune responses in humans and animals. The loved ones whom Tracey left behind wanted to carry on her legacy of devotion to research and biology by supporting younger scientists in their endeavors. The Eugene Medford Scholarship recipients were **Sarah Blaido, and the Rolлие and Sue Shafer Scholarship recipient was **Ryangeun Kim. Shirley Monroy** was the Department Chairs Scholarship recipient, and **John Glenn Garcia** and **Nicholas Tahamassi** were the Outstanding Seniors Award recipients.**



Biology Scholarship Award Recipients with Dr. Art Goven

Other News

Associate Professor **Dr. David Hoeninghaus** organized and hosted a workshop on the effects of deforestation on freshwater ecosystems, fisheries and local communities in the Amazon. The event, held at UNT from May 30 to June 2, 2017, brought together world-recognized experts on fish diversity and ecology, remote sensing and land cover change, hydrology, and fisheries of the Amazon to develop new major research collaborations that integrate those topics. Support was provided by the UNT Office of Research and Innovation, College of Science, Department of Biological Sciences and the Advanced Environmental Research Institute.

Dr. Benjamin Dubansky took part in artist Brandon Ballengee's "Crude Life: A citizen art and science investigation of Gulf of Mexico biodiversity after the Deepwater Horizon oil spill" at an exhibition at the Louisiana Universities Marine Consortium (LUMCON), a marine research station in Cocodrie, Louisiana. Dubansky has partnered with Ballengee on several art-science projects and is working with Crude Life to develop a visually engaging and interactive mobile art and science museum. From LUMCON, Dubansky captained a cruise for Ballengee, filmmaker Rachel Mayeri and J.D. Talasek from the National Academies of Sciences to collect rare specimens for a Cabinet of Curiosities that is a centerpiece of the Crude Life exhibit.

Several Cub Scouts and their parents visited Dr. Warren Burggren's Lab to learn about the effects of environmental stressors on early development. This is the third year the lab has hosted this visit, which fulfills some of the requirements for the Cubs to receive their Science Badge.

Dr. Kent Chapman has two Lycoming College intern students, Erki Wagner and Zachary High who will be working through the summer on projects with post-doc Scott Greer and graduate student Yingqi Cai, respectively.

Thesis and Dissertations

Dedric Taylor successfully defended his Ph.D. Dissertation "*The Acute Toxic Effects of the Synthetic Cannabinoid, JWH-018, on the Cardiovascular and Neuroendocrine Systems in *Ictalurus punctatus* (Channel catfish).*" Dedric's dissertation advisors were Drs. Amie Lund and Mark Burleson.

Recent Publications

Aziz M, Sturtevant D, Winston J, Collakova E, Jelesko JG, Chapman KD (2017) MALDI-MS Imaging of Urushiols in Poison Ivy Stem. *Molecules*. 22. pii: E711. doi: 10.3390/molecules22050711.

Churchill, C.J., Hoeninghaus, D.J., and La Point, T.W. (2017) Environmental conditions increase growth rates and mortality of zebra mussels (*Dreissena polymorpha*) along the southern invasion front in North America. *Biological Invasions*, DOI 10.1007/s10530-017-1447-8 <https://link.springer.com/article/10.1007/s10530-017-1447-8>

Dixon, R.A. and other members of Committee on Genetically Engineered Crops, National Academy of Sciences, Engineering and Medicine (2017). National academies report on genetically engineered crops guarded against bias. *Chronicle of Higher Education*. June 12, 2017. <http://www.chronicle.com/blogs/letters/national-academies-report-on-genetically-engineered-crops-guarded-against-bias/>

Dubansky B., Rice, C. D., Barrois, L., Galvez, F. (2017) Biomarkers of aryl-hydrocarbon receptor activity in Gulf killifish (*Fundulus grandis*) from the northern Gulf of Mexico following the Deepwater Horizon oil spill. *Archives of Environmental Contamination and Toxicology*. Special Issue on Ocean Spills and Accidents. 73. <https://link.springer.com/journal/volumesAndIssues/244>

Dumitrache, A., Natzke, J., Rodriguez, M., Yee, K.L., Thompson, O.A., Poovaiah, C.R., Shen, H., Mazarei, M., Baxter, H.L., Engle, N.L., Fu, C., Wang, Z.-Y., Biswal, A.K., Li, G., Tang, Y., Tschaplinski, T., Stewart, C.N., Dixon, R.A., Nelson, R.S., Mohnen, D., Mielenz, J., Brown, S.D. and Davison, B.H. (2017). Transgenic switchgrass (*Panicum virgatum* L.) with reduced recalcitrance to bioconversion: a two-year comparative analysis of five different types of transgenes in the field. *Plant Biotechnology Journal* (epub), doi: 10.1111/pbi.12666.

Durrer, K.E., Allen, M.S., and Hunt von Herbing, I. (2017) Genetically engineered probiotic for the treatment of phenylketouria (PKU) assessment of a novel *in vitro* and in the PAH(enu2) mouse model of PKU. *PLoS ONE* 12(5): e0176286. <https://doi.org/10.1371/journal.pone.0176286>

Gould, F., Amasino, R.M., Brossard, D., Buell, C.R., Dixon, R.A., Falck-Zepeda, J., Gallo, M.A., Giller, K., Glenna, L., Griffin, T.S., Hamaker, B., Kareiva, P.M., Magraw, D., Mallory-Smith, C.A., Pixley, K., Ransom, E., Rodemeyer, M., Stelly, D.M., Stewart, C.N., Whitaker, R.J. (2017). Elevating the conversation about GE crops. *Nature Biotechnology* 35, 302-304.

Khursigara, A. J., Perrichon, P., M. Bautista, N., Burggren, W. W., and Esbaugh, A.J. (2017). Cardiac function and survival are affected by crude oil in larval red drum *Sciaenops ocellatus*. *Science of the Total Environment*, 579:797-804. <http://www.sciencedirect.com/science/article/pii/S0048969716324573>

Lu, N., Roldan, M. and Dixon, R.A. (2017). Characterization of two TT2-type MYB transcription factors regulating proanthocyanidin biosynthesis in tetraploid cotton, *Gossypium hirsutum*. *Planta* doi:10.1007/s00425-017-2682-z

Mueller, C.A., Tazawa, H., and Burggren, W.W. (2017) Dynamics of acid-base and hematological regulation in day 15 chicken embryos (*Gallus gallus domesticus*) exposed to graded hypercapnia and hypoxia. *Respiratory Physiology & Neurobiology*. 239: 55-63 Pyc, M., Cai,

Y., Greer, M.S., Yurchenko, O., Chapman, K.D., Dyer, J.M., and Mullen, R.T. (2017) Turning Over a New Leaf in Lipid Droplet Biology. *Trends Plant Sci.* 17, S1360-1385. doi: 10.1016/j.tplants.2017.03.012.

Rao, X. and Dixon, R.A. (2017). Brassinosteroid mediated cell wall remodeling in grasses under abiotic stress. *Frontiers in Plant Science* doi: 10.3389/fpls.2017.00806

Reiley, B.M., Benson, T.J., Evertts, J.L., and Bednarz, J.C. (2017) Does flooding effect the apparent survival and body condition of a ground foraging passerine? *PLoS ONE* 12(4): e0175179. <https://doi.org/10.1371/journal.pone.0175179>

Tófoli, R.M., Dias, R.M., Alves, G.H.Z., Hoehinghaus, D.J., Gomes, L.C., Baumgartner, M.T., and Agostinho, A.A. (2017) Gold at what cost? Another megaproject threatens the Amazon. *Perspectives in Ecology and Conservation*, DOI 10.1016/j.pecon.2017.06.003 <http://www.sciencedirect.com/science/article/pii/S2530064417300342>

Yang, H., Barros-Rios, J., Kourteva, G., Rao, X., Chen, F., Shen, H., Liu, C., Podstolski, A., Belanger, F., Havkin-Frenkel, D. and Dixon, R.A. (2017). A re-evaluation of the final step of vanillin biosynthesis in the orchid *Vanilla planifolia*. *Phytochemistry* 139, 33-46.

Extramural Grants and Contracts

Developing resistance to Fusarium head blight in wheat. US Department of Agriculture. PI: Jyoti Shah. \$24,955.

Creating Resilience: Building a Gulf of Mexico NAKFI Alumni Workshop Group. National Academies of Sciences, Engineering, and Medicine. PI Brandon Ballengee. Co-PIs Benjamin Dubansky, Diego Figueroa, Christopher Hayes, David Murphy, Adam Skark. \$25,000.

Seminars/Talks

Bugs and more bugs: Using probiotics and the fish gut microbiome to produce healthy fish for human consumption. Aquaculture America -World Aquaculture Society Meeting. San Antonio, Texas; 2017. Oral presentation by Dr. Ione Hunt von Herbing. Co-authors: M. Anderson and W. Busby.

Climate change: facts versus fake facts. Phi Sigma Pi National Honor Fraternity, UNT Chapter, Denton, TX, April 2, 2017. Invited talk by Dr. Jim Bednarz.

Identifying the most common student misconceptions in general Microbiology. American Society for Microbiology Microbe 2017, New Orleans, LA; June 2017. Invited talk by Dr. Lee Hughes.

Imaging cottonseed lipid metabolism- New insights into metabolite distribution by MALDI Mass Spectrometry. Huazhong Agricultural University, Cotton Genetics Improvement Group, Wuhan, China, June 4, 2017, Invited Seminar, Kent D. Chapman.

Localization of lipids by mass spectrometry: A recurring theme of tissue heterogeneity in seed lipid metabolism. 6th European Lipidomics Meeting, Toulouse France, April 10, 2017, Invited Symposium Speaker, Kent Chapman.

Metabolite location by mass spectrometry imaging reveals new insights into lipid metabolism in oilseeds. Wuhan University, College of Life Sciences, Wuhan, China, June 5, 2017, Invited Seminar, Kent D. Chapman.

New protein players in plant lipid droplet biology: Targets for elevating lipid content in plants. Huazhong Agricultural University, National Key Lab Crop Genetic Improvement, Wuhan China, June 6, 2017, Invited Seminar, Kent D. Chapman

Scaling the small world initiative. 4th Annual Small World Initiative Symposium- American Society for Microbiology (ASM Microbe 2017), New Orleans, LA. June 2017. Invited talk by Roxanna Hughes.

Slip me some sugar: how bats absorb glucose across the intestine. Department of Biology, Texas Tech University, Lubbock. April 12 2017. Invited seminar by Dr. Edwin Price.

Threshold responses of Amazonian stream fish diversity to deforestation. Abt Associates (on-site and webinar); Boulder, CO; June 2017. Invited seminar by DJ Hoehinghaus.

Conference Presentations

Beard, M.M., Rapp, I.M., Bhuiyan, S., Layton, S.R., Nayek, S., and Hughes, L.E. *Isolation and annotation of 11 Streptomyces xanthochromogenes bacteriophages.* 2017 Howard Hughes Medical Institute SEA-PHAGES Symposium, Ashburn, VA; June 2017.

Bhuiyan, S., Layton, S., and Hughes, L.E. (2017). *Comparative analysis of four cluster B11 Streptomyces phages.* American Society for Microbiology Microbe 2017, New Orleans, LA; June 2017.

Busby, W. and Hunt von Herbing, I. *Effects of multi-strain probiotics on the growth, behavior, and gut health of juvenile red drum Sciaenops ocellatus.* Aquaculture America -World Aquaculture Society Meeting. San Antonio, Texas; 2017.

Ghaste, M., and Shulaev, V. *Metabolomics of cotton riber.* 65th Annual ASMS Conference on Mass Spectrometry and Allied Topics, Indianapolis, IN; June 2017.

Jones, L. B., and Kunz, D. A. (2017). *Conserved genes linked to cyanide assimilation in diverse bacteria*. Metabolic networks and microbial physiology, #776. American Society for Microbiology, Annual Meeting, New Orleans, LA; June 2017.

Mohanty, D., Louis, J., Sarowar, S., Mondal, H., Behera, S., and Shah, J. *Role of PCB1, a putative Ca²⁺-binding protein, in Arabidopsis defense against the Green peach aphid*. 28th International Conference on Arabidopsis Research, St. Louis, MO; June 2017.

Moss, T. and Hughes, L.E. (2017). *Bioinformatic and comparative analysis of Streptomyces bacteriophage Immanuel3*. American Society for Microbiology Microbe 2017, New Orleans, LA; June 2017.

Patel, M., Sarowar, S., and Shah, J. *Role of a WRKY Transcription Factor in Arabidopsis thaliana Interaction with the Green Peach Aphid, Myzus persicae*. 28th International Conference on Arabidopsis Research, St. Louis, MO; June 2017.

Terrill, S., Diaz, A., Daniel, L., Gonzalez-Villareal, C., Alam, S., Pradhan, R., Zaman, K., Hughes, R., and Hughes, L. (2017). *Antibiotic producing bacteria from North Texas soil*. Small World Initiative 4th Annual Symposium (ASM Microbe 2017), New Orleans, LA; June 2017.

BIOsphere is a quarterly newsletter of the Department of Biological Sciences, University of North Texas

Physical Location

1511 West Sycamore
Life Sciences Complex
Denton, TX 76203-5017, USA

Phone (940) 565-3591

Mailing Address

University of North Texas, Department of Biological Sciences
1155 Union Circle # 305220
Denton, TX 76203-5017, USA

Fax: (940) 565-3821

Web: <https://biology.unt.edu/>