

Biological Sciences

FALL 2016



EAST TENNESSEE STATE
UNIVERSITY

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Greetings and Welcome



Joe Bidwell, Chair

Photo: Maria Kalis Buchanan

Stay tuned for a new department motto and logo derived from these ideas!

I am particularly pleased to announce that the inaugural meeting of the Department of Biological Sciences Advisory Board was held in mid-December. As highlighted previously, this board is comprised of alumni and other members of the community who are engaged in medical and other science-related occupations. The committee will provide an external set of eyes and minds to offer input on areas such as strategic planning and curriculum development. It will also help establish a contact network for our students.

Another semester draws to a close - this one seemed to go by particularly fast! This fall, we welcomed 149 new biology majors to the program and continued as one of the larger units in the College of Arts and Sciences with 567 undergraduates and 39 graduate students. I would like to extend a well-earned congratulations to those students who received their degrees in biology during the 2016 Fall commencement - we wish you all the best in your future endeavors!

The biology faculty spent much of the fall engaged in discussion of the undergraduate curriculum and how we could best incorporate a series of student learning outcomes into what we teach. These learning outcomes represent what we feel our graduates should know as biology majors and derive in part from a faculty retreat held in the summer of 2014. They have also been influenced by recent guidance on undergraduate biology education provided by the National Science Foundation and the American Association for the Advancement of Science. Our discussions have at times been challenging, but they have forced us to evaluate what and how we are teaching. A key outcome so far is the recognition that the education we provide our students is not only about biological concepts but also about the skills and experience they gain in our program.

In other news, our EagleCam project is back for year two and includes additional cameras and the capacity for night viewing. I am hopeful that the enhanced viewing experience will make this second season an even greater success than we had for year one. I would also like to welcome two new members to the department; Dr. Gerardo Arceo-Gomez is an Assistant Professor of Biology with a research focus in plant ecology and Araceli Gonzalez is our new Laboratory Assistant. Welcome Gerardo and Araceli!

Finally, I would like to thank all who provided financial support to our student scholarships, research endowments, and the EagleCam over these last months. This support is most appreciated and critical for us to continue these initiatives. If you are interested in becoming a donor, a mail-in form is available on the last page of the newsletter. Alternatively, online donations can be made through the "Give Now" link on the department webpage (<http://www.etsu.edu/cas/biology/>).

Please remember that we always enjoy hearing from students, alumni, and other friends of the department (bidwell@etsu.edu) and best wishes for the upcoming holiday season and for an outstanding 2017!

Joe Bidwell
Professor and Chair of Biological Sciences

Newsletter editor: Maria Kalis Buchanan
Design: Virginia Buda, budavs@etsu.edu
Biomedical Communications



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Department of Biological Sciences Advisory Board

The department is excited to announce the formation of the Department of Biological Sciences Advisory Board. This is an opportunity for the department to work with successful members in the workforce and elicit feedback on the program; what employers are looking for and opportunities for students' future employment options. The first meeting with the board was held in December.

Dr. Leonard Robertson Named TWRA Hunter Safety Instructor of the Year

On August 19, 2016, at the annual meeting of the Tennessee Wildlife Resources Agency Hunter Safety Division, ETSU Biology Professor Leonard Robertson was named the Hunter Education Instructor of the Year. The award was presented by the TWRA Region IV Director of Hunter Safety, Tommy Whitehead. Robertson has been a certified instructor in the state hunter safety program for the past 43 years and has trained hundreds of young Tennessee citizens as a mandatory part of obtaining their legal hunting credentials. In his most recent ETSU class, Oct. 10-15, he trained and certified 17 students to obtain their state hunting safety certificates. The mandatory safety certificate, along with a state hunting license, is required of every person who hunts in Tennessee each year. All Hunter Safety Program teachers work without remuneration.

The inaugural members are:

Marquette Crockett, an ETSU Biology Alum, and currently the Highlands of Roan Stewardship Director at Southern Appalachian Highlands Conservancy, Asheville, NC.

David Skelton, Principal Chemical Engineer for Plant Protection with Eastman Chemical Company, Kingsport, TN.

Rachel Grindstaff, an ETSU Biology Alum and currently a Biological Scientist with the U.S. Environmental Protection Agency Office of Research Development.

Dr. Kristi Tipton, an ETSU Biology Alum and a veterinarian at Banfield Pet Hospital in Asheville, NC.

Dr. Danny Lewis, an ETSU Biology and James H. Quillen College of Medicine Alum, practices Family Medicine for Takoma Regional Hospital, Greeneville, TN.

Former Grad Student Returns as Faculty



We are always pleased when a former graduate student returns to ETSU. In this case, she is Rebecca (Becky) Adkins Fletcher. After completing her M.S. in Biological Sciences, which included presenting her work on tardigrades at the International Symposium on Tardigrada in Cambridge England, and publishing the research in the prestigious *Zoologischer Anzeiger*, Rebecca continued her education at ETSU with a B.S. degree in Sociology, which led to her M.A. and Ph.D. in Anthropology at the University of Kentucky.

Rebecca is a medical and cultural anthropologist, who joined the Department of Appalachian Studies at ETSU as Assistant Professor this fall, and she is also Assistant Director of the Center for Appalachian Studies and Services. She comes to ETSU from the University of North Carolina, where she held a lecturer position in the Department of Anthropology. Rebecca's work engages the intersections of health disparities, access to health care, economic transformation, gender, and activism in Appalachia. She has recent publications in *Medical Anthropology Quarterly* and the *Journal of Appalachian Studies*. She is also co-editor of the book *Appalachia Revisited: Regional Perspectives on Place, Tradition, and Progress* from the University Press of Kentucky and has been newly appointed to the *Journal of Appalachian Studies* Editorial Board. As an ETSU alumna, she is delighted to return to East Tennessee with her husband, Brian, an artist and public school art teacher, and her two sons. Welcome home, Becky!

Submitted by Dr. Rebecca Pyles. Photo: ETSU photographic services



EagleCam **UPDATE**

Submitted by Dr. Fred J. Alsop III and Kevin Brooks

Over 1 million views later...

EagleCam Project is a success!

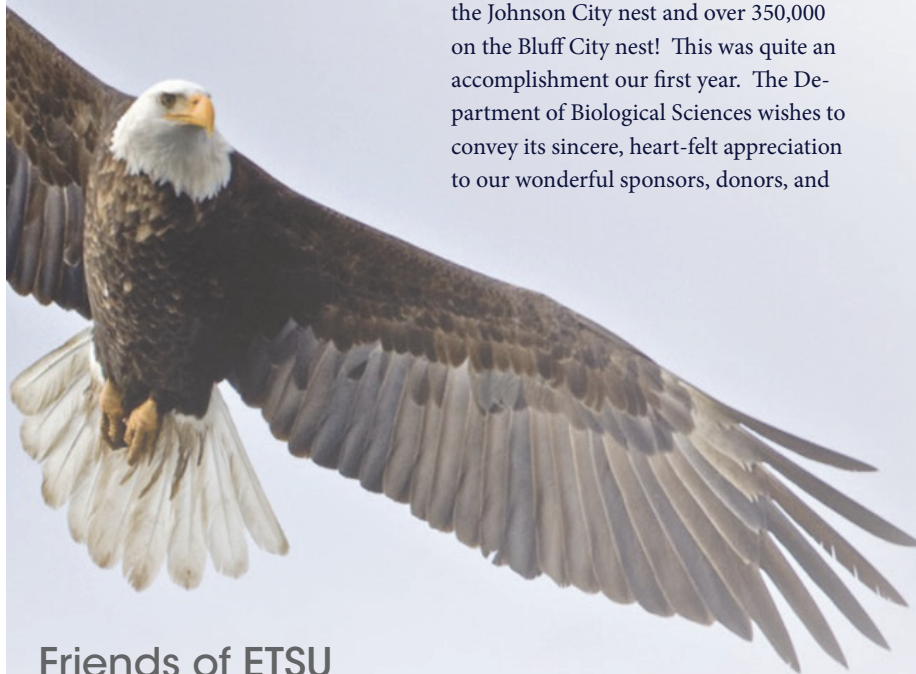
At the close of the 2015-2016 nesting season, we had over 1 million views on the Johnson City nest and over 350,000 on the Bluff City nest! This was quite an accomplishment our first year. The Department of Biological Sciences wishes to convey its sincere, heart-felt appreciation to our wonderful sponsors, donors, and



online community. The EagleCam Project has begun a new tradition of eagle watching at ETSU and will continue to need everyone's support in the years to come.

New to the upcoming 2017 nesting season are two additional cameras, hardware and infrared for night viewing. The Johnson City camera now has fiber optics and the resolution is much improved over last year. Both nest sites received these upgrades in time to see all of this year's eagle activities, including the expected arrival of the new chicks! Live-streaming began prior to Thanksgiving. If you wish to help support ETSU Department of Biological Sciences EagleCam Project please visit the Biological Sciences homepage and click the blue "Give Now" arrow.

Thank you all for your support!



Friends of ETSU EagleCam:

*(With much gratitude from ETSU Department of Biological Sciences to BTES for providing complete support for the Bluff City Eagle Camera) *Sponsor*

Bluff City Webcam

- Bristol Tennessee Essential Services (BTES) *

Winged Deer Park Webcam

- Tennessee Valley Authority *
- Mahoney's Outfitters *
- Thomas Eugene and Frances Morrell
- Eddie Myers and Jane Snyder
- In honor of the Airport Pet Emergency Clinic
- In memory of Gabby May Sims by CJ & Hawk Sims of Bear Dog Mtn.
- In honor of Dr. Fred J. Alsop, III and Kevin Brooks
- In memory of Robin Paul Wilson by Ms. Donna Nickerson
- Ms. Karen Lynn Sullivan

- Ms. Haley Stiltner
- In memory of Blan Thompson by Darlene Thompson
- Joe and Kathy Carder
- In memory of Jeff Leonard by Mrs. Sandra Leonard
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- Mr. Wayne Bays
- In memory of Sara Willis by Lowell & Laura Greene
- In honor of Jason, Rachel and Lucas Lyons by Mrs. Margaret Strickler
- Lucy and Louie Gump
- Ms. Patricia Warren
- In memory of Polly Newell by her daughter

- Mr. Huston Keith
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- In memory of Peter Sellers by Lois Felix
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- In honor of Beth Jones by Mrs. Margaret Strickler
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- In memory of Mary Cox Phippen by Matthew Hopkins



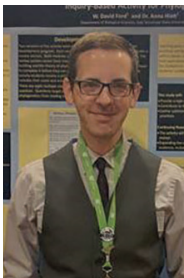


Notes from Faculty Laboratories

View full articles in the online edition.



Jones' Lab



David Ford, Hiatt Lab



Bret in Switzerland, Photo: Dr. Lev Yampolsky

Bidwell Lab The Bidwell lab has enjoyed a busy fall semester. The lab welcomed a new member, Mark Albright, an ETSU graduate who joined the lab as a master's student. Mark is from Chattanooga, Tennessee, and is currently reviewing literature for his project. Mark plans to investigate stress involving predator cues in zebra mussels. Trevor Chapman and Melissa Campbell spent the summer months in the field and lab. Melissa completed her data collection and is currently working on writing her thesis. Trevor is hard at work conducting his own research; his current focus is on acute toxicity testing and data analysis. All three students have been assisting each other with the various stages of their respective graduate projects. They all look forward to presenting their work in the spring. *Submitted by Melissa Campbell*

Jones' Lab This past summer the ETSU Spiderlab was well represented at the 20th International Congress of Arachnology. The week-long gathering in Golden, Colorado, was attended by over 300 arachnologists from around the world. Our group gave six presentations on various aspects of the neurobiology and ecology of behavior. The attendees from ETSU were (pictured above from left to right) Dr. Thomas Jones, Dr. Jennifer Price, Ashley Herrig, Alex deMarco, and Rebecca Wilson (Madeleine Miller not pictured). In other news, beginning January 2017, Dr. Jones will be an associate editor for the *Journal of Arachnology*. *Submitted by Dr. Thomas Jones*

Yampolsky Lab Lev Yampolsky spent the fall semester 2016 in Basel University, Switzerland, working on genomics of thermal adaptation in *Daphnia* in the laboratory of his long-term collaborator, Dr. D. Ebert. He has been an invited speaker at the Mind-the-Gap Population genetics meeting in Vienna, Austria, where he presented a talk on evolution of phenotypic plasticity. A master's student from his lab, Bret Coggins, visited him in Basel this past December for two weeks. Bret attended a Quantitative Genetics module of the Evolutionary Genetics course Dr. Yampolsky co-taught in Basel, and participated in research. His trip was jointly funded by ETSU and a Swiss federal grant to Drs. Ebert and Yampolsky. *Submitted by Lev Yampolsky*

Kilaru Lab Lots to share and celebrate this fall. Dr. Kilaru is tenured and promoted to the rank of Associate Professor, effective fall 2016. The Southern Section of American Society for Plant Biologists elected Dr. Kilaru as its Secretary-Treasurer for 2017-18. Dr. Kilaru and members of her team attended the 19th Annual Moss International Conference, Leeds, UK, and was elected for a two-year term to serve on the extended board of iMOSS (The International Molecular Moss Science Society). The Department of Plant Pathology, Lexington University, KY, invited Dr. Kilaru to deliver a seminar. Master's student Mahbubur Rahman was honored with his first publication, and Dr. Kilaru and her lab attended the American Society of Plant Biologists meeting in Austin, TX. *Submitted by Dr. Aruna Kilaru*

Hiatt Lab Over the summer, students in the Hiatt lab worked on using NVIVO software for data analysis on the use and application of biology education science practices among K-16 instructors. Students Sara Normark, Mary Barfield, and Richard Miller worked on establishing phenology gardens at the ETSU Valleybrook campus as part of an NSF grant to implement plant-based research into undergraduate biology courses.

Dr. Hiatt's lab traveled to the yearly conference of the National Association of Biology Teachers in Denver, Colorado during the first week of November. *Submitted by Dr. Anna Hiatt*

Arceo-Gomez Lab The Arceo-Gomez lab opens shop at ETSU! In the lab we are interested in all types of plant-animal interactions, but mainly we study plant-pollinator interactions and the role that they play in the organization of plant communities. We are also excited to welcome Jesse Daniels to the lab! He will be conducting his master's thesis evaluating how invasive plants can disrupt native plant-pollinator interactions. Finally we are also happy to announce that a new paper with our collaborators in Spain and Mexico was recently accepted for publication in *FLORA*. If you want to learn more about our research please visit our lab web page <http://gtarceo.wixsite.com/lab-home>. *Submitted by Dr. Gerardo Arceo-Gomez*



Welcome to the Department!

Dr. Gerardo Arceo-Gomez I am excited to join the department of Biological Sciences at ETSU. You could say that I'm a plant ecologist, but I like to incorporate aspects of community ecology and evolutionary biology into my research. In particular, I study the causes and consequences of multi-species interactions in natural communities and how these can determine why some species are able to coexist while others can't. I try to answer these questions by studying plant-pollinator communities. Plant-pollinator interactions are not just fascinating from an ecological perspective, but are also responsible for the majority of our food supply. These interactions are also crucial for the maintenance of biodiversity and are currently being threatened by changes in climate and habitat use.



Arceo-Gomez

On a personal note, I conducted my undergraduate and master's studies in Mexico before joining the PhD program at the University of Pittsburgh, where I graduated in 2014. From there, I conducted postdoctoral research at Cornell University, University of Yucatan, and the University of Pittsburgh. In my spare time, I enjoy the outdoors, reading and listening to music, especially jazz. I am happily married and my wife and I are both excited to be part of this great community here in Johnson City. - Dr. Gerardo Arceo-Gomez (photo courtesy of Dr. Arceo-Gomez)



Araceli with Chris Pecora

Araceli Gonzalez joins the department as the new Laboratory Assistant. Araceli was born and raised in Aurora, Illinois. She graduated in 2012 from the University of Illinois at Urbana-Champaign with a B.S. in Integrative Biology. Previously she worked as a Chemistry Lab Assistant for Waubensee Community College and enjoys spending free time volunteering and bird watching. Back home Araceli volunteered as an animal keeper/caretaker for Willowbrook Wildlife Rehabilitation Center and J.G. Shedd Aquarium. She also loves to travel and explore different parts of the country. The Department is excited to have Araceli be a part of our team!



Araceli is pictured with Daisy, an Albino Ball Python rescued by Friends of Scales Reptile Rescue, a nonprofit organization. Daisy was released by her owners and her story is used to educate the public.



Annual Meet & Greet

Photo: Derek Stuffle

In the beginning of the fall semester, members of the department enjoyed a Meet and Greet with the current and incoming Graduate and Ph.D. students. This annual affair is a great way for the students to enjoy dinner with the faculty and meet fellow students. Everyone has an opportunity to introduce themselves and speak about their research interests, goals and meet instructors. This event is held in the courtyard of Brown Hall and over 60 attendees were present.



COASTAL BIOLOGY CLASS VISITS GULF COAST

Submitted by Fred J. Alsop III

The Coastal Biology Field Trip class has been an annual offering of the Department of Biological Sciences in the fall semester since its inaugural class traveled to the Outer Banks of North Carolina in 1980. The preparation for the 2016 class taught by Drs. Fred Alsop and Thomas Laughlin followed the same tried and true pedagogy that had been successful for many years. Lectures and reading assignments were all geared to prepare students for their six-day experience on the barrier islands along the National Seashore of the Outer Banks. Everything was in order for the mid-October trip until just a few days prior to departure. Then came Hurricane Matthew, the first Category 5 Atlantic Coast hurricane since Hurricane Felix in 2007, and a quick



decision to cancel the trip or find safer waters had to be made the day before the class was scheduled to depart on 6 October.

The University of Southern Mississippi's Gulf Coast Research Laboratory in Ocean Springs, MS, just east of Biloxi was a possible site. A phone call set the reservations for a biological adventure in a place never before visited by an ETSU biology class. The class departed on schedule the next day for Ocean Springs, MS, with 10 undergraduate students, three graduate students, and three faculty including Dr. Joe Bidwell, chairman of the department.

The staff at the Gulf Coast Research Laboratory were both gracious hosts and anxious to make our field experience as educationally fulfilling as possible. They helped plan land and sea excursions that placed the ETSU students birding at a tertiary water treatment plant and in a bog inhabited with carnivorous plants in the Desoto National Forest on our first day of

class in Mississippi. The class traveled eastward to visit Dauphin Island, a barrier island near Mobile, AL, where we identified the plants and birds in this sun-drenched community, and seined the tidal ponds for fishes and invertebrates. The afternoon was spent visiting the Estuarium, the Dauphin Island Sea Lab, a 10,000-sq.-ft. exhibit hall featuring marine, estuarine and freshwater communities. Sunday was spent catching the ferry out of Gulfport, MS, to West Ship Island where we explored the island operated by the National Park Service and toured historic Fort Massachusetts as part of the Gulf Islands National Seashore. Our last day at the Research Laboratory was spent aboard the R.S. Hermes, a research vessel operated by the laboratory, with a local marine educator who helped the class trawl for fish and invertebrate species in the bay, set hand-lines for sharks, and to sample marine invertebrates on Deer Island, a relic island off the coast from Biloxi.

The Gulf Coast adventure was excellent in providing new habitats, new biological locations to explore, and the opportunity to use the research facilities of another university. Our students and faculty turned what could have been a cancelled extended field trip into a very positive experience with the able assistance of our colleagues in Mississippi.

Photo: Kevin Brooks

Fall Retreat to Roan Mountain Biological Sciences LLC



This is the second year of the Biological Science Living Learning Community (BIO LLC), a residential community of freshman biology majors living in Governors Hall. Each semester students in the BIO LLC choose a location for a retreat. This fall, students decided to take an overnight camping trip to Roan Mountain. Over a dozen students joined ETSU faculty Dr. Anna Hiatt and ETSU alums Kevin and Dallas Brooks on the adventure. For more than half of the students, this was their first outdoor camping trip and many enjoyed mushroom hunting with Dr. Ekaterina Kaverina and birding with Kevin.

Photo: Kevin Brooks



HONORS BIOLOGY FALL 2016

OUR NEW STUDENTS: For the fall 2016 semester, the department selected seven students to join our Honors Program. Five of the seven students selected are new freshmen, and two students are current ETSU students and upperclassmen. Unfortunately, one of our freshmen decided not to continue. We are pleased to introduce our newest honors scholars:

Submitted by Dr. Rebecca Pyles

Ian Crosby is from Bristol, VA. Ian began his college career in 2013 after graduating high school at age 16. He received his associate's degree in Science, with honors, from Virginia Highlands Community College (VHCC). While at VHCC, he gained experience in scientific field research and fostered a passion for Virginia plant life and herbal medicine. Ian began attending ETSU in spring of 2016.

Mattea Garmany was born in Bristol, Tennessee, and raised in Sevierville, Tennessee, for the past 14 years. Mattea actively participates in church, mission trips, honor clubs, music, community service, and many other activities. Mattea will be majoring in Biology through the Honors-In-Discipline program at East Tennessee State University.

Mackenzie Guthrie is from Columbia, TN, a fifth-year student this year and has attended ETSU the past two years while being a part of the Midway Honors Scholars program. Her research for the honors program involves studying the effects of SRA expression with sepsis and she carries this research out at Quillen College of Medicine with Dr. Tammy Ozment.

Hannah Rauhoff is from Sevierville, Tennessee, and was a valedictorian at Sevier County High School. She has a great love for science and music. An active member in her high school band she will be continuing her musical career with the ETSU wind ensemble. Her senior year in high school she interned at an optometry office, fell in love and hopes to become an ophthalmologist.

Guenivere Starling is from Wadsworth, Ohio. She started this year as a freshman, and will be living in the Pre-Health Living-Learning Community, studying Biology and pre-med. She is very excited to move to Tennessee and hopes to develop lots of new interests.

Maeson Stewart is from a small community in southeast Tennessee and graduated from Polk County High School. After joining Health Occupations Students of America her sophomore year, Maeson became interested in the medical field. She has always been fascinated with the subjects of science and math.

For more information about our Honors in Biology program, please contact Dr. Rebecca Pyles (pylesr@etsu.edu). Please visit our website for the full article.

In Memoriam

Dr. Timothy "Tim" Lee King

An alum of ETSU, Dr. Timothy "Tim" Lee King passed away September 30, 2016. Dr. King received his Biology degree from ETSU in 1980, earned his Ph.D. from the University of North Texas then joined the U.S. Department of Interior as a Research Fish Biologist. When the Center became part of the U.S. Geological Survey in 1994, Dr. King led the development of the genetics program until his passing. In addition to his research, he was often asked to serve as an expert on threatened and endangered species issues. Dr. King was appointed as the North American expert on the Atlantic salmon. In 2002 he was awarded the U.S. Geological Survey Superior Service Award for his contributions to understand the biology of Atlantic salmon and efforts to recover this valuable species. Dr. King was an internationally recognized expert in the field of conservation genetics and genomics. His research contributions provided the basis for identifying unique species and populations, guiding state and federal conservation programs of threatened and endangered species, in addition to publishing over 100 research papers. Dr. King is survived by his wife, two sons, and will be missed by family, colleagues and friends. (Full article: <http://www.journal-news.net/obituaries/2016/10/timothy-l-king/>)

Dr. Denise Pav, MD

Because I could not stop for Death, he kindly stopped for me; the carriage held but just ourselves. and Immortality. – Emily Dickinson (extract, *The Chariot*)

Dr. Denise Pav, MD, passed away August 2016 in Johnson City, Tennessee. Her passion was teaching and research centered on the study of developing bones. A prolific publisher of articles in those fields, she was also a leader in that area for the prestigious International Gordon Conferences. She will be fondly remembered by the many pre-med undergraduate students she advised and mentored. She will be missed by those who were fortunate to work with her during her time as a member of the department from September 1964 to May 1990. One of the most esteemed annual Biology graduate student awards was created in her honor, The Dr. Denise I. Pav Endowment. Dr. Pav is survived by her son, Dr. John Pav, his wife, and two grandchildren.

Alumni News

Dear Friends,

I am slowly adjusting here with the weather and culture in a new place. The weather is still warm in Baton Rouge; seems like I have been missing the fall colors and weather of Johnson City so much. Here at Louisiana State University, the Ph.D. coursework and research work start from the very first semester of the program. In addition, I am teaching two labs of introductory biology. I enjoy what I am doing now, especially the Nucleic Acid course by Dr. Ann Grove. In this course, Dr. Grove mainly focuses on the practical aspects of the molecular biology techniques that help in trouble shooting the problems occurring on the daily basis in molecular biology research. Most importantly, I am enjoying my research project that focuses on elucidating the role of a conserved class of membrane transport DedA family proteins that could have a role in drug resistance against the colistin antibiotics, which are the last resort antibiotic against the *Klebsiella pneumoniae*.

When I get some leisure time, I never miss to enjoy the football games here at LSU. Game days are always celebrated as a huge festival in Baton Rouge. I miss the kind people, safe environment and academic upbringing in East Tennessee State University. After joining a new university, I firmly believe that ETSU is delivering education to their students that meets the requirement of the current time.

Vijay Tiwari, M.S. Biology, 2016

Thesis Completions

The following students were successful in presenting and defending their theses the past two semesters:

Aubrey Sciara presented “Characterization of Pro-inflammatory and Anti-inflammatory Microglia in the Anterior Cingulate Cortex in Autism Spectrum Disorder”. Committee: Dr. Greg Ordway, Chair; Dr. Len Robertson and Dr. Victoria Palau.

Timothy Audam presented “Characterization of SIP470, a Family C1 Lipid Transfer Protein and its Role in Plant Stress Signaling”. Committee: Dr. Dharendra Kumar, Chair; Dr. Ranjan Chakraborty and Dr. Karl Joplin.

Vijay Tiwari presented “Isolation and Heterologous Expression of Tomato Fatty Acid Amide Hydrolase”. Dr. Aruna Kilaru, Chair; Dr. Cecilia McIntosh and Dr. Cerrone Foster.

Sangam Kandel presented “Structural and Functional Analysis of Grapefruit Flavonol-Specific -3-O-GT Mutant P145T”. Committee: Dr. Cecilia A. McIntosh, Chair; Dr. Ranjan Chakraborty and Dr. Shivakumar P. Devaiah.

Jedaidah (Jedy) Chilufya presented “Anandamide-mediated growth changes in *Physcomitrella patens*”. Committee: Dr. Aruna Kilaru, Chair; Dr. Dharendra Kumar and Dr. Ranjan Chakraborty.

Swati presented “Cloning of N-acyl-ethanolamine metabolic pathway genes from *Physcomitrella patens*”. Committee: Dr. Aruna Kilaru, Chair; Dr. Bill Stone, Dr. Dharendra Kumar and Dr. Stacy Brown.



We cannot do this alone.

It is because of the support of individuals like you that enables our department to provide research, field work and preserve our enriched learning environment.

Yes, I would like to donate to ETSU Department of Biological Sciences...

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 William Harvey and Nina M. Fraley Memorial Award Endowment

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Mailing address: ETSU, Department of Biological Sciences, D.M. Brown Hall, Room 125, PO Box 70703, Johnson City, TN 37614-1710

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