The Department of Biological Sciences is entering the 2019-2020 academic year with tremendous excitement and anticipation. We are excited that our faculty have acquired over half a million dollars in research funding over the past year, and these some of funds will support the research of our many undergraduate students who work in their labs. We are also excited that for the third year in a row our graduates collectively achieved scores that exceeded the 90th percentile nationally on Major Field Test in Biology, an exam taken by all of our graduating seniors. This exam is also taken by tens of thousands of college senior biology majors from over 450 schools, and our 2019 graduates achieved the 95th percentile! This is a direct measure of the quality of our academic programs. We are also very excited about the construction of the new home for the College of Science and Mathematics that is underway on our Health Science Campus adjacent to Medical College of Georgia’s Harrison Education Commons. This new home for our department will contain state of the art laboratories, and it will provide the space we need to grow both our academic programs and our research capacity. Moreover, it will put our faculty and our students right in the middle of the action on our Health Sciences Campus. We are also excited about the launch of our new Masters of Science in Biomolecular Science program which will officially begin in fall 2020. This two-year research-based masters program will prepare students for future jobs in a variety of molecular science fields or prepare them for Ph.D. or other professional programs, and we are already recruiting the first class of students. Finally, the students who have matriculated through our BS/MD and BS/DMD Programs continue to perform extremely well in their medical and dental programs. Their success is a clear indication of the quality of our undergraduate programs and the excellent mentorship provided by our faculty.

Dr. Richard Griner
Department Chair
Student Research Presentations

INTERNATIONAL/NATIONAL MEETINGS

The Wildlife Society 25th Annual Conference
Cleveland, OH
Measuring the Influence of Traffic Noise on Songbird Vocalizations**
E. Frazier, M. Van Deventer, and R. Cromer

Evaluation of Wild Pig Behavioral Responses after exposure to visual and olfactory stimuli on Cowden Plantation, Jackson, SC.***
S. R. Hitchens and B. Saul

National Collegiate Honors Council Conference
Boston, MA
Optimizing Primary Microglia Isolation and Culture**
D. Doughty and J. Bradford

Structural Affinity of CAP1 and AC isoforms**
S. Mehrotra and M. Sabbatini

The sublethal effects and bioaccumulation of 17-ethinyl estradiol in Lumbriculus variegatus.**
K. Ogunsemore and F. Wiley

2019 American Association for Cancer Research Conference
Atlanta, GA
Production of a NF-κB Deficient Microglial Animal Model**
M. Goodall, K. Soni and J. Bradford

Optimizing Primary Microglia Isolation and Culture**
D. Doughty and J. Bradford

49th Annual Meeting of the American Pancreatic Association
Miami, FL
Nox1 Mediates Caerulein-Induced Pancreatic Fibrogenesis Likely Mediated by TGF-β/Phosphorylation of H3 Pathway**
J. Shuja, K. Singh, D. Xia, C. Hernandez, Csanyi, L. Miller, and M. Sabbatini
REGIONAL MEETINGS

**Southern Regional Honors Council Conference**
Memphis, TN
Solving a Problem at its Root: Is Aquatic Vegetation the Answer for Safe Composting in an Urban Brownfield? **
S. Mondeddu, D. Thiruvaiyaru, and D. Wear

**Tri-Beta Regional and 80th Annual Association of Southeastern Biologists Combined Meeting**
Memphis, TN
Production and characterization of a microglial NF-κB deficient animal model♦
M. Goodall and J. Bradford

**Southern Regional Yeast Meeting**
Atlanta, GA
Investigating the requirement of HOB1 on the sensitivity of *Schizosaccharomyces pombe* after exposure to various DNA damaging agents**
A. Qureshi and A. Abdulovic-Cui

**Georgia Academy of Science (2018)**
Carrolton, GA
The Significance of the Study of Evolution: Development and Implementation of an Interactive Course Module: Phase II**
C. Wilson, N. Sanyal, A. Wise and S. Mukhopadhyay

**Georgia Academy of Science (2019)**
Gainesville, GA
Analysis of water quality in relation to diatom community diversity**
M. Wiley and J. Reichmuth

**Southeastern Regional Meeting of the American Chemical Society**
Augusta, GA
Method development and environmental sampling of AVM toxin♦
N. Maron and F. Wiley

**Southeastern Estuarine Research Society Spring Meeting**
Wilmington, NC
Flatfish assemblage and abundance differences between the St. Catherines Island and Satilla River estuaries**
K. Coleman, A. Bickle, D. Thiruvaiyaru, S. Sethuraman, J. Reichmuth, and B. Saul

It all started at a SEERS meeting: Researchers and citizen scientists join forces to investigate multi-decadal issues in the Satilla Estuary, GA♦

Satilla’s towering *Spartina*♦
S. Johnson, S. Bennetts, and J. Reichmuth

Indicating potential intersex through vitellogenin expression in the blue crab, *Callinectes sapidus***
S. Gregory, J. Reichmuth, and J. Cannon

**Flots and codes: Using an Arduino-based GPS-tracking sonde to measure hydrologic flow in an estuary ♦**
M. Laird, C. Morrison, J. Hauger, and J. Reichmuth

**Codes and floats: Developing and testing an Arduino-based GPS-tracking sonde♦**
C. Morrison, M. Laird, J. Hauger, and J. Reichmuth

Community structure of epiphytic diatoms in the Satilla River Estuary**
E. Thomas, A. Mathews, and J. Reichmuth

**A tale of two snails: how Noyes Cut affects snail populations in the Satilla River Estuary**
S. Walker and J. Reichmuth

Assessing the impact of eutrophication on the relationship of *Littorina irrorata* and *Spartina alterniflora* and its ecological effects on salt-marsh estuaries**
L. Wheeler and J. Reichmuth

**7th Annual Southeast Regional Georgia Undergraduate Research Conference**
University of North GA
Nox1-evoked ROS causes Fibrosis in Caerulein-Induced Chronic Pancreatitis through the AKT pathway ♦
A. Chakrabory and M. Sabbatini

**Structural Affinity of CAP1 and AC isoforms**
S. Mehrotra and M. Sabbatini
LOCAL MEETINGS

**CURS Brown Bag Seminar**
Optimizing Primary Microglia Isolation and Culture◆
D. Doughty and J. Bradford

Structural, Kinetic, and Functional Properties of Adenylyl Cyclase-Associated Protein 1/Adenylyl Cyclase Complexes in Pancreatic Cancer Cells◆
S. Mehrotra and M. Sabbatini

**CURS Summer Scholars Program Poster Session**
Alterations in histone modifications following alcohol in pancreas from Nox1 KO mice**
J. Shuja, D. Xia, K. Singh and M. Sabbatini

The role of myeloid cell NF-κB signaling in cancer**
D. Doughty, M. Goodall, E. Mikulsky and J. Bradford

**20th Annual Phi Kappa Phi Student Research and Fine Arts Conference**
Evaluation of Canis hair as a potential wild pig repellent on Cowden Plantation, Jackson, SC**
Hitchens, S.R. and B. Saul

Flatfish assemblage and abundance differences between the St. Catherines Island and Satilla River estuaries**
K. Coleman, A. Bickle, J. Reichmuth, D. Thiruvaiyaru, S. Sethuraman, and B. Saul

Structural, Kinetic, and Functional Properties of Adenylyl Cyclase-Associated Protein 1/Adenylyl Cyclase Complexes in Pancreatic Cancer Cells◆**
S. Mehrotra and M. Sabbatini

Nox1 facilitates invasion of pancreatic cancer cells through Snail/MMP-9 production in pancreatic stellate cells **
C. Godoy, A. Chakraborty, G Csanyi, and M. Sabbatini

Examining the effects of *Aetokthonos hydrillicola* extract on oxidative stress in C6 cells**
K. Ward and F. Wiley

Using ycf1 to investigate the ladies’ tresses orchids of AU’s Summerville campus **
B. Overlie, W. Saunders-Cummings, C. Bates, and C. Christy

Surveying mosses for fungicidal activity**
Stephanie Yan and C. Christy

The Role of CXCL10 and NF-κB signaling in Macrophage Influence on Breast Cancer Invasion**
E. Mikulsky and J. Bradford

Ecotoxicology of Yellow-Bellied Sliders (Trachemys scripta) in Natural Wetlands **★
Rachel Hammesfahr, Jessica Sharp-Miner, R. Cromer, and J. Fischer
**Biological Sciences Honor Convocation Awardees**

**Emil K. Urban Student Research Awards**
These awards were created in memory of Emil K. Urban who passed away on January 23rd 2014. Dr. Urban was an internationally-known and highly-respected ornithologist who co-authored the definitive works on African birds, titled appropriately, the *Birds of Africa*. He led our department as chair for 27 years with excellence, and the sustained quality of our academic programs and the student-centered culture ingrained in our department are his lasting legacy. We owe it to his memory to strive to never lose these qualities as we seek to maintain the level of excellence he established for our Department. Each year three undergraduate students who have made outstanding contributions in research are selected by the faculty of the Department of Biological Sciences - one award is given to a student whose research is field-based, one is given to a student whose research is laboratory-based, and for the second time, another will be awarded to a student whose research bridged both categories.

**Laboratory Research – Michael Goodall**
**Michael** is a senior Cellular and Molecular Biology major from Peachtree City, GA. He has performed undergraduate research with Dr. Jennifer Bradford for the past two years and quickly became an integral member of her lab. Michael has been heavily involved in the creation of a novel transgenic animal model, which is being used to study microglial NF-kB signaling in glioblastoma, and is the basis of Dr. Bradford’s recently awarded NIH R15 grant. Michael has presented his work at eight different venues and has been a CURS Summer Scholar for the past two summers. He is the best student animal handler that Dr. Bradford has ever worked with, and will be missed for not only his animal skills, but also for his mentorship ability. Michael will start medical school at the Philadelphia School of Osteopathic Medicine in Suwannee, GA in the fall, where he also plans to continue biomedical research.

**Integrated Research – Elise Thomas**
**Elise** graduated from Augusta University with a Bachelor’s Degree in Ecology and a minor in Anthropology in the fall of 2018. Elise has participated in field collection on the Noyes Cut and Satilla River project since Spring 2017. From her experiences with that project and Zoology course, she became interested in the diatom community dynamics in the Satilla River Estuary. She presented her findings at the Spring 2019 Southeastern Estuarine Research Society Meeting in Wilmington, NC this past March. Her special interests are in marine ecology as well as fisheries science, and she would like to pursue a MS program that combines these topics. In the meantime, she continues to enjoy volunteering with Dr. Reichmuth in the Satilla River Estuary.

**Field Research – Liam Wolfe**
**Liam** is from Augusta and graduated with a degree in Ecology in December 2018. During his time here, he served as a Departmental student ambassador and was an inductee into the Augusta University Chapter of the Biology Honors club Beta Beta Beta. He held a research internship at Phinizy Center for Water Sciences for three years, conducting research in bird and mosquito ecology. He has been an active volunteer for Drs. Cromer, Reichmuth, and Saul in several areas of wetland ecology. His undergraduate research has been presented Phi Kappa Phi Student Research Conference and the Wildlife Society National Meeting. He is also an avid wildlife photographer and his work is featured on Phinizy Center for Water Sciences website. He plans to continue his education and work in the field of wildlife biology. **Liam is currently in Texas working on an ornithology field internship.**

**Dianne C. Snyder Distinguished Service Award**
*Each year senior biological sciences major who has demonstrated an exemplary and sustained degree of selfless and dedicated service to the Department of Biological Sciences is selected by the faculty of the department to receive this award established in honor and memory of Dr. Dianne Snyder.*

**Shubhra Rajpurohit**
**Shubhra** was born in India and moved to the US when she was 10 years old. She graduated from Lakeside High School and enrolled at AU in 2015. As a student here, Shubhra has been a very faithful member of our College’s Student Ambassadors and she has served as a Teaching Assistant for several professors and for multiple courses. Among those are Histology, a course she had not actually taken but her knowledge of basic tissues from other courses and her familiarity with the new microscope technology in the lab made her uniquely qualified. Shubhra has served as a teaching assistant in our Molecular Laboratory Techniques course including all the pre-lab prep for that course. Her level of organization, preparedness, and her attention to detail have helped to ensure that labs are always set up for success. Additionally, the students are very comfortable with Shubhra and she has proven to be a great peer mentor while she is assisting in these labs.
Four AU undergraduates presented research to Georgia legislators at the Georgia State Capitol on March 27th. Deanna Doughty, Hitesh Honkanadavar, Simrin Mehrotra, and Nitish Sood spent the day travelling to and from Atlanta for the first annual Posters at the Georgia Capitol event, hosted by the Georgia Undergraduate Research Collective. Students submitted abstracts for a competitive review and were selected to discuss their findings among other students across Georgia public and private colleges and universities.

Cell and Molecular Biology major Nitish Sood commented "Finding out the person you’re presenting to is the State Senate Finance Committee Chairman is a unique experience that can only happen at the Capitol! I’m very glad that I had this unique opportunity."

**Biological Sciences Outstanding Senior Award**

*Each year a senior biological science major that has a distinguished record based on their classroom and laboratory performance and their major and overall grade point average is selected by the faculty of the Department of Biological Sciences*

**Shubhra Rajpurohit**

Shubhra entered AU in 2015 with passion to pursue a career in medicine, and she has been a highly engaged student. Shubhra has served our department as a laboratory assistant and by occasionally filling in in the department office. She has also served the Department and College as a student ambassador, she has volunteered with a number of campus organizations, been very active in both the honors program and in undergraduate research. Shubhra has been engaged in research on the vision of premature babies in order to find biomarkers for disease in the lab of Dr. Manuela Bartoli, professor and director of research in the Department of Ophthalmology at MCG. Most impressively, Shubhra was chosen to make a presentation of this research to the members of the Board of Regents when they met her on Augusta University’s campus last fall. In addition, Shubhra has been able to present her work at 11 conferences and has co-authored a paper which has been published in a peer-reviewed journal. Lastly, it is important to note that Shubhra has been a favorite of many of her professors due to her strong work ethic and her very positive attitude. She hopes to enter the MD/PhD program to support her plans to work with visually impaired children.

**Academic Excellence Award in Biological Sciences**

*This award recognizes excellence and achievement in academic performance for the highest science GPA.*

**Avirale Sharma**

Avirale was born in India, but grew up in Dallas, TX & Augusta, Georgia. While he was a student at Lakeside High School he shadowed physicians in cardiology and cardiovascular surgery, and volunteered in healthcare settings. This inspired him to pursue a degree in science and a career in medicine. During college he continued to shadow physicians, and he worked closely with the elderly at Elmcroft Senior Living, the uninsured at the Sai Health Clinic, and children at Camp Joint Venture. At the same time, he participated in research in the labs of Drs. Pans and Hoda, and the Spring 2018 Phi Kappa Phi Conference he presented a poster titled “S100A1 is essential for pediatric traumatic brain injury (PEDTBI) Induced Depressive Behavior.” Avirale graduated from Augusta University in Summer 2018 with a degree in Cell and Molecular Biology, and he is now in his first year of medical school at the Medical College of Georgia.
Graduate/Professional School Acceptances

**Medical School**
- Will Littlefield – Philadelphia College of Osteopathic Medicine
- Michael Goodall - Philadelphia College of Osteopathic Medicine
- Abhi Srivatsa - Philadelphia College of Osteopathic Medicine
- Kikelomo Ogun-Semore - Medical College of Georgia, AU
- Sarah Vick - Medical College of Georgia, AU
- Shrey Patel – Ross University School of Medicine
- Anna Raley – Mercer University

**Dental School**
- Ron Chemmalakuzhy - Dental College of Georgia, AU

**Physician Assistant Program**
- Alejandro (Alex) Aguilar - Master of Medical Science: Temple

**Alumni Accolades**
- Dr. Suzanne Huffman Smith (1986, 1990) received a Distinguished Alumni Award during AU Alumni Weekend
- Dr. Taylor Winkleman (2011) received an Outstanding Young Alumni Award AU Alumni Weekend
- Dr. Sandra Y. Tadros – Graduated with a M.D. from the Medical College of Georgia, AU
- Mike Nakama - Graduated with a M.S. in Marine & Environmental Science, NOVA Southeast
- Shannon Gregory – Graduated with a M.S. in Wildlife and Fisheries, Clemson University
- Alyssa Outhwaite, - Graduated with a M.S. in Biology, University of Dayton

**Professional Scholars Program**

As Academic Year 2019 comes to a close, we look back with pride on the many accomplishments of our Professional Scholars. Whether it be through academics, research, or volunteerism, the professional scholars have had many highlights as noted below: The Junior class entering MCG this Fall averaged 515 on the MCAT with one of those students scoring 523, placing him in the top 1% nationally. The Sophomore class had several highlights including our first scholar ever to be accepted by Harvard to complete a summer internship at Mass General; and our first scholar to present research to Georgia legislators at the State Capitol. And the Freshman class founded the first ever Fencing Club at AU and have one scholar working with the Tumor Bank at the Georgia Cancer Center. Throughout every cohort, the professional scholars joined service organizations such as 1828 Ambassadors, Biology Club, MAPS, Pre-Dental Club, and volunteered for events such as the Dental College of Georgia Impressions Program, Igniting the Dream of Medicine Conference, CURS Brown Bag Seminars, and Augusta University Day of Service. We would like to thank those faculty on the Summerville and Health Sciences campuses who have mentored the professional scholars through participation in various research topics/projects such as obesity and insulin resistance, post-traumatic depression, and creation of a low-cost CPR test dummy that’s Arduino-based with real-time feedback. Many of these scholars will continue this summer to partner with faculty to conduct or continue with ongoing research, volunteer in the CSRA or back at home, shadow physicians and dentists, and prepare for the MCAT or DAT. In the Fall of 2019, we will welcome the seventh cohort of Professional Scholars and look forward to mentoring them as they formally begin their journey toward a career in healthcare.
TriBeta 2018-2019 Inductees

Beta Beta Beta (TriBeta) is a society for students dedicated to improving the understanding and appreciation of biological study and extending boundaries of human knowledge through scientific research. Since its founding in 1922, more than 200,000 persons have been accepted into lifetime membership, and more than 553 chapters have been established throughout the United States and Puerto Rico. This year at AU 25 Biology majors were inducted into the Kappa Kappa Chapter of Tri Beta during a ceremony on March 29th in the JSAC Ballroom. Congratulations!

Faculty Awards

Augusta University Outstanding Faculty Award: Dr. Jessica Reichmuth
Outstanding Young Faculty Award for the College of Science and Mathematics: Dr. Eugenia Sabbatini
Outstanding Research Award for the College of Science and Mathematics: Dr. Jennifer Bradford

Center for Undergraduate Research (CURS) 2019 Summer Scholars Program:
- Dr. Jennifer Bradford with student: Apurva Nemala
  Determining p65 deletion efficiency and specificity of the p65fl/fl/CX3CR1creER animal model
- Dr. Eugenia Sabbatini with students: Hisham Kashif and Bithika Halder
  Characterizing the fibrogenic role of Nox1 in the transition from chronic pancreatitis to pancreatic cancer

Faculty Mentoring Network, Howard Hughes Medical Institute, Chevy Chase, Maryland: Dr. Soma Mukhopadhyay
Scholarship of Teaching and Learning (SoTL), Augusta University: Dr. Soma Mukhopadhyay

Faculty Grants, Presentations, and Publication

External Grants

National Institutes of Health
Dr. Jennifer Bradford
NIH Academic Research Enhancement Award (R15)
Title: Delineating microglial NF-kappaB signaling in glioblastoma growth and therapy

University System of Georgia
Dr. Soma Mukhopadhyay and Ms. Lisa Ruggiero Wagner
Textbook Transformational Grant
Title: Creation of an Open Educational Resource (OER) Rabbit Anatomy: A Photographic Atlas and Dissection Guide

Augusta/Richmond County
Dr. Bruce Saul
US EPA/GA EPD Section 319(h) Program
Title: Biota Improvement in an Urban Stream through Aquatic Habitat Restoration

Presentations

Dr. Soma Mukhopadhyay – 32nd Annual Conference of the Human Anatomy & Physiology Society. (Poster) A Study on the Use of Teaching Assistants in Human Anatomy and Physiology: Their Prevalence Recruitment Strategies, Funding, Retention, and Training

Drs. Soma Mukhopadhyay & Bran Cromer – Augusta University faculty forum. (Oral) Destination Tanzania- Study Abroad Experience.

Publications

Watson Folk, Alpana Kumari, Tetsuhi Iwasaki, Slovenie Pyndiah, Joanna Johnson, Erica K. Cassimere, Amy Abdulovic-Cui, and Diatoku Sakamuro. Loss of the tumor suppressor BIN1 enables ATM Ser/Thr kinase activation by the nuclear protein E2F1 and renders cancer cells resistant to cisplatin. Accepted by: JBC February 2019
Connect

Connect is a new undergraduate club started in Spring 2019. What Connect does...

Being an undergrad can be the tipping point in your life, where you have to make the most essential decisions. These decisions are often influenced by listening to other individuals’ experiences. Every individual has experienced a different path in achieving their goals, so why not experience for yourself? As a club, we strive to bridge the gap between the professional world and undergraduates. We aim to make job-shadowing and volunteering a simpler process by cutting out red tape and initiating relationships with numerous different professions. We plan on starting with providing shadowing and volunteering opportunities within the healthcare field, however we hope to open up more doors in different non-health professions as well. For more information contact auconnect19@gmail.com.

MAPS (Minority Association of Pre-Health Students)

MAPS, which stands for Minority Association of Pre-Health Students, is the Summerville campus organization that works closely with its mentors from the SNMA (Student National Medical Association) group at the Health Sciences Campus. Our mission is to guide, support, and encourage pre-healthcare students in their various ambitions to become members of the healthcare field. Ultimately, our goal is to increase diversity in the healthcare field, with a special emphasis on underrepresented minorities and work towards the betterment of general patient care. We seek to bridge the gap between undergraduate studies and professional level programs (such as medical, dental school, and other graduate schools), and raise awareness of the health profession in the community especially among underrepresented populations. Also, we hope to provide minority communities with resources and information about general health care and preventative medicine, in order to eliminate health disparities. MAPS was able to host Ms. Melissa Knapp, the coordinator of the CURS program, who was able to conduct a research workshop for MAPS members by providing information about the research opportunities available at Augusta University. SNMA and MAPS were able to hold a mentor-mentee mixer to provide members with an MCG mentor from healthcare fields. This allowed them to build a more personal relationship with someone at the medical school to help them discuss any advice or even future problems they may encounter.

We were able to send volunteers (with Ms. Knapp) to the Clinica Latina and the Costa Layman Clinic at the Allied Health Sciences campus. We were also able to have many members participate in Igniting the Dream at MCG!

MAPS’s focus this year was to expand their research and volunteering opportunities to the members and we have been very successful in getting members more involved in the community! We always encourage students to join this club so we can make a difference on the Summerville and Health Science Campuses!

Aarushi Kalra
MAPS President 2018-2019

Biology Club Corner

The Biology Club is an organization that aims to fortify the passion for biological sciences among its members. The club organizes volunteer opportunities, plant sales, speaker events, and even social gatherings. The cohort of students in this group support one another by mentioning, sharing job shadowing opportunities, participating in upcoming campus events, and assisting with any other event that promotes volunteerism. On and off campus, members of this club often share advice and tips about classes as well. The 2018-2019 year has been a great one for Biology Club! We started off our Fall Semester by increasing our total member count to over 300 members! Bio Club has made their presence known around the AU campus by going to tabling events for Clubfest, Accepted Student Preview Day, and even Undergraduate Preview Days. Monthly club meetings highlight upcoming volunteer events and offer students the ability to socialize with fellow biology students. A notable addition to the club this year, in partnership with the Chemistry Club, was to offer seminars by Dr. Sullivan with the Biomedical Graduate Program and Sgt. Duby from the U.S. Army to inform club members about potential careers and graduate programs students can consider with a science major. In addition to serving our own student body, Biology Club strived to reach out to our local communities here in Augusta. Club members volunteered for the Day of Service at the Savannah River Land Trust, participated in Augusta University’s first ever Earth Day, served as science fair judges for local schools, and volunteered at Phinzy Swamp for Augusta’s Earth Day. Overall, the biggest event for the club each semester is the Plant Sale. The Fall plant sale was led by outgoing Vice President Allison Lewis, and despite the frigid temperatures, club members manned the table and sold almost all of the plants that had been grown.

Remaining plants at the end of the sale were donated to a local teacher and a Boy Scout mom who were both working to build gardens with their respective groups. Throughout the spring semester, plant sale efforts have been coordinated by Porsche Sandow, Vice President, with the assistance of greenhouse attendant Benjamin Overlie. Ben has not only helped with all aspects of the sale but he has been amazing in teaching Biology Club members in the greenhouse to pot various succulents, herbs, and other plants to sell to the AU community. Proceed from the spring Plant Sale will be donated to Augusta Locally Grown, to promote investing in local farmers. As a whole the 2018-2019 year has provided biology club students with some amazing opportunities and experiences and with next year’s total members expected to increase even more, we cannot wait to see what next year has in store!

Hanna Minot
President August University Biology Club 2018-2019
Originally coming to college at Augusta University for our strong science and pre-medical program, I always knew that I wanted to do something big with science, but I never knew just how involved I could become as an undergrad. Yet, even with all the right intentions, a rocky freshman year full of all the distraction a kid away from home for the first time can experience, I was academically and motivationally lost. It took the failing of my first Genetics test and a trip to Dr. Bradford’s office to kickstart my return. I had heard from a friend that she was involved in some pretty interesting research, and while not exactly in the ideal position to bargain about research opportunities, I asked anyways and she said that if I completed a full outline of the next few chapters and made high A’s, I could have a shot. Thankful for the opportunity, I worked diligently and towards the end of that semester I was in her lab learning lab safety and the introduction to basic PCR and cell culture techniques. I vividly remember the first presentation I ever attended where some of Dr. Bradford’s currently graduating seniors were explaining their research on the LysMCre model used to delete NFkB activity in these magical microglial brain cells and how this somehow influenced the rate of tumor growth. I had never felt so intimidated and out of my league; it seemed as I would never possibly be able to understand the scientific depth to these studies. Once again, Dr. Bradford kindly proved me wrong as I was tasked with drawing out conceptual pathways on the lab whiteboard then explaining them back to her until I understood the basis of immunology and cancer research.

That summer, I continued my research with her through the CURS summer research program and absolutely fell in love with everything that a brain cancer research project had to offer. After the many tireless hours Dr. Bradford spent guiding me through my seemingly endless mistakes, I finally started to become self-proficient in the lab (at least to some degree), and this new found confidence inspired me to become even better so I could help her and the lab to the best of my ability. Through the following semesters, I took ownership of the side project of creating a transgenic mouse model for further microglial activation testing. This meant that many hours were spent working hands on with the animals (as I found I had a somewhat natural knack for) genotyping, and then running the PCR’s to determine future breeding lines. I have been so grateful for this opportunity to help Dr. Bradford, further cancer research, and learn so much about science through research.

Through research, I have learned so much not only about science, but also about myself. I’ve learned the value of perseverance, learning from one’s failures and how to think critically outside of the box to solve pressing issues. On a slightly more superficial level, I now know that I am much less squeamish than I previously thought, and that has opened countless doors of opportunity for my future as a physician. I certainly could not have gotten where I have without Dr. Bradford or research, and for that, I am so grateful.

Michael Goodall  
AU Class of 2019
Study Abroad Experience

Adventures in Tanzania

During our trip to Tanzania, Africa, we truly did feel like Jaguars leaping out of our comfort zones. We began our trip by exploring the historic and bustling city of Arusha. We explored museums, local restaurants, and shops with hand-crafted clothing, jewelry and art. We even heard guest lectures about giraffes! After leaving Arusha, a city flooded with color and culture from the townspeople, our trip took a complete turn. The busy streets with paved roads, shops, and people switched to dirt roads, potholes, and zebras. Our trip was now focused on the growing population of the country and the environmental issues the people face.

Water efficiency, poaching, and pollutants were all topics we got to experience hands on while visiting several conservation facilities during our trip. We were able to help a local family create run-off ditches as an effort towards water conservation on their family farm and planted crops for them to help ease the load of a very labor-baring profession. Last but not least we even got the opportunity to build a “living fence” for local families that were made of long, thin thorn covered trees intertwined with wire to keep animals out of their houses.

For two nights, we stayed at Noloholo, a mobile campsite on top of a mountain. On the way to the site, our drivers created their own roads through tall grasses with only the sight of the mountain as their navigation. We all had our heads sticking out of the jeeps with sunroofs down, soaking in the sun, dodging pointy and poisonous Acacia trees, and periodically stopping to observe giraffes that we could almost touch. Our campsite was so close to the Tarangire National Park (full of predatory animals) that we required protection from the local Maasai, whom we picked up from their village on our ride up.

Although when we first arrived, we were completely aw-struck by our surroundings, the reality that we were in fact in the middle of nowhere with no running water, no showers, no electricity, and no contact with anyone for miles hit us fairly quickly. We don’t think any of us truly understood the extent to what we were going to experience. But honestly, nothing phased us. We were all so enthusiastic and ready to seize every moment and opportunity that came our way.

The most amusing part to us was that there were no fences and boundaries to any of the national parks of Tanzania. The animals were allowed to roam freely. Nature and the circle of life was allowed to proceed without any disturbance. It was so mesmerizing riding through the Serengeti plains and seeing the sun set to our left while seeing animals run freely to our right. They were not disturbed at all by our company. We were only ten feet away from a lioness who had just enjoyed her afternoon snack and were so close we could clearly see the blood still on her face. Yet, she had not flinched at all after acknowledging our presence. It was incredible; we felt as if we were all just animals living in harmony all under God’s blue sky.

We showered with birds and bees on top of a mountain. We used the bathroom squatting above a hole that seemed endlessly deep. We beatboxed and sang Disney songs around a campfire all night. We learned about purity, survival, and how not having the facilities we were so used to led us to enjoy our time and company even more. But most importantly, we learned about humanity. We got to take part of Maasai rituals, indulge in their foods, and even dance to their drums and music. The people of Tanzania taught us their culture as if we were their own, introduced us to their extended families, protected us from lions with their spears all day and night while we were camping, and supported our thirst for adventure even before the crack of dawn. But most importantly, they taught us that language barriers don't come between kindness, warmth, and compassion. Everyone was so accommodating and welcoming, and we quickly learned that the world is full of exceptional people with incredible stories and
A word that I would use to accurately sum up and describe my journey with the Biology Department would be ‘eventful.’ Over the course of the past few years, my experience with the Department has been nothing short of adventurous, challenging, and enriching in the best possible way. My passion towards medicine is what brought me to Augusta University. Today, as a graduating senior, my passion for medicine burns brighter than ever—thanks to the influence of the biology faculty.

After graduating high school, I was terrified to start something new. I knew it wasn’t going to be easy. At first, I was extremely lost and confused. Although I wanted to be a physician, I had no idea where to start or what to do. Looking back, I remember when Dr. Colleen Davis, in my BIOL 1108 course, took time out of her busy schedule to explain to a group of students, which courses to take, when to take them, and what is needed to be successful. That day, I realized that I had picked a great university to achieve my goals. Here, professors deeply care about their students’ success and not just about grades and lectures.

As a freshman, I was able to cultivate close relationships with my professors. I have also made lifelong friends who have similar goals as I do. I have been fortunate enough to be surrounded by talented individuals who have motivated and pushed me throughout my journey. Because of the opportunities I was given, I learned to work with multiple different personalities under various circumstances and expand upon my networking skills. Every professor created a friendly environment in the classroom, which made it easier for me to step out of my comfort zone and ask questions. Having long, deep conversations with my professors on topics that intrigued me, like cellular vesicle trafficking, were some of the memories I am pretty sure I wouldn’t be able to have at any other university.

Each step of the way, I was fortunate enough to be presented with opportunities that strengthened me not only as a student, but also professionally. From being an ambassador for the College of Science and Mathematics, a student government senator representing our college, a TA for multiple biology courses, and being a part of undergraduate research, every experience has shaped me as a student in many ways. More importantly, I was able to use the skills that I had learned throughout my journey and pass down my knowledge to those around me.

Shubhra Rajpurohit
AU Class of 2019