The Department of Biological Sciences: Truly a Destination of Choice!

Enrollment in the Department of Biological Sciences at GRU is growing rapidly. This newsletter will help demonstrate that the reasons for this increased enrollment are the tremendous opportunities and faculty interactions available to our students. For example, our faculty involvement in undergraduate research is very strong, with large numbers of students working in many different areas of biological sciences from ecology to genetics to microbiology to cancer research and more. In addition, many of our faculty participate in GRU’s Study Abroad program by offering science courses that allow students to study the native biota and ecosystems of other countries. Last, and most importantly, our students are not nameless numbers in a massive auditorium. Most of our courses have much fewer than 80 students, and our faculty take pride in truly getting to know our students, investing in them, mentoring them, and celebrating with them as they succeed.

As our enrollment surges, it is clear that our university, and specifically our department, has become a destination of choice for students in our state. Many of these students have aspirations of careers in healthcare, and clearly GRU is the state’s leader in providing advanced education in healthcare fields. Our undergraduate curriculum has provided strong preparation for students entering advanced healthcare programs for many years, and this fact is now being recognized throughout Georgia and beyond. We are proud of our history, and we look forward to a bright future as we seek to meet the demands of our growing enrollment.
Note from the Chair

As we conclude another academic year, we reflect on the many successes of our students and faculty. In 2014-2015, our faculty and students made nine research presentations at national conferences, fifteen at southeastern regional conferences, and four at state conferences. Three of our students gained admission into medical schools, and seven students gained admission into other professional and graduate programs. For the second consecutive year, one of our faculty colleagues was recognized as the Most Outstanding Young Faculty Member in the College of Science and Mathematics. This year’s recipient was Dr. Amy Abdulovic-Cui. Six of our faculty, led by Dr. Jessica Reichmuth, obtained a $55,000 grant from the Georgia Department of Natural Resources to study the effects of the Noye’s Cut on the Satilla River in south Georgia. Finally, two of our past graduates were recognized for excellence in their fields by GRU’s Alumni Association.

As we enter the next academic year, we are excited about the expanding opportunities for our students. We will soon welcome the third cohort of students into our Professional Scholars Programs (Medical and Dental Scholars). This class will again be larger than the previous class, and we are eager to engage these high-ability students and help prepare them for their future careers in healthcare. We are eager to mentor and teach the rapidly increasing numbers of students in our new Cell and Molecular Biology major and in our new Ecology major. We continue to plan for new academic programs and are exploring opportunities for a Master’s degree in Medicinal Sciences and a Master’s degree in Environmental Science. These programs will complement our existing majors, launch our department’s first graduate programs, and help Georgia Regents University continue to advance toward becoming a destination of choice for quality students.

The result of all of these accomplishments and opportunities is that our department and our university are being recognized as an outstanding place for exceptional students to pursue advanced education. The Department of Biological Sciences looks forward to the role we will play as Georgia Regents University continues to move rapidly toward becoming a premier destination university in the State of Georgia and in the southeast.

Dr. Richard Griner
Department of Biological Sciences Chair
Georgia Regents University
Student Research Presentations

INTERNATIONAL /NATIONAL MEETINGS

2015 Experimental Biology Meeting
Boston, MA

The Lack of AC1 Impairs the Inhibitory Effects of cAMP on Cell Migration and Cell Proliferation of Pancreatic Cancer
S. Quinn, T. Flakes, E. Holcomb, L. Chavez, and M. E. Sabbatini

Perfluorooctanoic Acid-Induced Progesterone Synthesis Inhibition is Associated with Decreased Expression of Steroidogenic Acute Regulatory Protein (StAR) mRNA but Not p450 Side-Chain Cleavage mRNA in hCG-Stimulated mLTC-1 Cells
E. Miller, S. Tadros, and J. Cannon

REGIONAL MEETINGS

The Southern Division of the American Fisheries Society (AFS) Spring Meeting
Savannah, GA

Genetic Identification of Longnose Gar Populations Using Microsatellites in Estuarine Versus Freshwater Environments

Southeastern Ecology and Evolution Conference
Athens, GA

Stress of Handling and Marking Techniques of Squirrel Tree Frogs (Hyla squirella) as Part of a Mark-Recapture Study
S. Lance, J. Heim, S. Gregory, and R. B. Cromer

Interspecific Relationships Between Sus scrofa and Odocoileus virginianus
A. Coleman, S. Mannix, G. Jansen, and B. Saul

The Wildlife Society 21st Annual Conference
Pittsburgh, PA

Testing the Effectiveness of Visible Implant Elastomer (VIE) Markers in Hylid Tree Frog Mark-Recapture Studies
A. Mincey, M. Pike, K. Khaksarfarad, and R. B. Cromer

Assessing Validity of Wildlife Population Density Estimates at Communal Feeding Locations in Comparison to Natural Wildlife Travel Corridors
G. Jansen, A. Coleman, S. Mannix, J. Miller, and B. Saul

Interspecific Relationships Between Sus scrofa and Odocoileus virginianus
A. Coleman, S. Mannix, G. Jansen, and B. Saul

Joint Meeting of the American Elasmobranch Society and The American Society of Ichthyologists and Herpetologists
Chattanooga, TN

Diet Analysis of the Bonnethead Shark, Sphyrna tiburo, Around St. Catherines Island, Georgia: Composition, Gender Variation, and Temporal Shift
K. Price, J. O’Bryhim, B. Saul, and S. Lance

Stress of Handling and Marking Techniques of Squirrel Tree Frogs (Hyla squirella) as Part of a Mark-Recapture Study
L. Gordon, J. Heim, S. Gregory, and R. B. Cromer

In Vitro Toxicity Study on the Role of a Novel Epiphytic Cyanobacterium in Avian Vacuolar Myelinopathy
E. Beshiri, J. Maldonado, and F. Wiley
Student Research Presentations

REGIONAL MEETINGS

Southeastern Regional Yeast Meeting
Little Rock, AK
Investigating the Role of Hob1 in Repairing Double Stranded DNA Breaks in the Fission Yeast, *Schizosaccharomyces pombe* ◆ ◇
S. Ozturk and A. Abdulovic-Cui

Investigating the Effect of Sodium Fluoride on the Genomic Stability of *Saccharomyces cerevisiae* **◆
A. Arvidsson and A. Abdulovic-Cui

Effect of a RNR1 Mutation on DNA Microsatellite Stability in Yeast **
A. Alam, N. Hashmi, and A. Abdulovic-Cui

Tri-Beta Regional and 76th Annual Association of Southeastern Biologists Combined Meeting
Chattanooga, TN
Metal Tolerance and Accumulation in a Rare Plant Species, *Piediomelum piedmontanum* (Fabaceae) **
J. Padgett and S. Bennetts

The Effects of Perfluorooctanoic Acid on Cell Viability and Peroxisome Proliferator-Activated Receptor Gene Expression in MCF-7 Cells ◆ ◇ ●
A. Smith and J. Cannon

Is *Microcystis aeruginosa* Chemically Defended Against a Freshwater Rotifer? **◆
A. M. Chase, N. A. LaBon, and E. K. Prince

REGIONAL MEETINGS

Southeastern Estuarine Research Society Spring Meeting
Jacksonville, FL
It's Getting Hot in Here: Mummichog Response to Variable Temperatures and Light Exposure **◆
B. James, I. Umoh, and J. M. Reichmuth

Walk or Stand? Activity Budgets and Responses to Predators of Three Fiddler Crab Species **◆★★
E. Neff, S. Anchor, and J. M. Reichmuth

Morphometrics and Possible Endocrine Disruption in Two Populations of Fiddler Crabs Along the Georgia-Carolina Coast **
J. Cannon, J. Mercer, and J. M. Reichmuth

A Comparison of Mud Fiddler Crab Response to Varying Levels of Glyphosate **◆
A. Outhwaite, K. Gill, and J. M. Reichmuth

Georgia Academy of Science Conference
Milledgeville, GA
A Preliminary Assessment of the Scores of Restaurants in the CSRA and Coliform Counts in Tea ◆
Z. Fryer, R. Syed, H. Trivedi, L. Vernon, S. Whitten, and C. Bates

Georgia Undergraduate Research Conference
Statesboro, GA
Is *Microcystis aeruginosa* Nutrititionally Inadequate, Unpalatable, or Toxic for the Freshwater Rotifer *Brachionus calyciflorus*? ◆
N. A. LaBon, A. M. Chase, and E. K. Prince
**Graduate and Professional School Acceptances**

**Medical School**
- Atique Alam – Georgia Regents University
- Sandra Tadros - Georgia Regents University
- Tarik Mudjazic - Georgia Regents University

**Dental School**
- Lindsey Quibeuf – Lake Erie College of Osteopathic Medicine, School of Dental Medicine
- Robert Fisher – Georgia Regents University

**Physician Assistant School**
- Angela Woodward - Rosalind Franklin University of Medicine and Science

**Program in Occupational Therapy**
- Maclaine Garrison - Georgia Regents University

**Pharmacy School**
- Takia McCormick - University of Georgia

**Graduate School**
- Austin Coleman – MS Conservation Ecology; University of Georgia
- Terrill Flakes – MS Public Health; Georgia Regents University
- Edward Floyd - MS Molecular Physiology; Georgetown University
- Ivie Conlon – PhD Pharmaceutical Sciences; University of Maryland

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**CURS Brown Bag Seminar**

*Development of HA-AC1 and HA-AC3 Plasmids* ♦

H. Hassan and M. E. Sabbatini

**CURS Summer Scholars Program Poster Session**

*A Holistic Assessment of Noyes Cut on the Satilla River Estuary* **


*The Effects of Multiple Stressors on Freshwater Organisms: Unraveling the Effects of Endocrine Disruptors, Toxic Algae, and Predation.* **♦ ©

A. M. Chase, N. A. LaBon, and E. K. Prince

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**16th Annual Phi Kappa Phi Student Research and Fine Arts Conference**

*Evaluating the Effects of Commercial Scent Attractants on Mammal Behavior and Populations at Cowden Plantation, Jackson, SC* **

K. Gill, B. Minter, V. West, and B. Saul

*Comparison of Four Commercially Available RNA Extraction Products* **

M. Yassa, L. Lawson, and J. Cannon

*Identification and Analysis of Gram Negative Bacteria on Spiders***

S. Buckner and C. Tugmon

*Understanding the Human Body Through Molecular Evolution and Its Use in Health Care* ♦

S. Morgan and S. Mukhopadhyay

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♦ Oral Presentation
** Poster Presentation
★ Award Winner
❖ Presented at Phi Kappa Phi Conference
⊙ Presented at CURS Brown Bag Seminar Series
✓ Presented at Georgia Academy of Sciences Conference

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♦ Oral Presentation
** Poster Presentation
★ Award Winner
❖ Presented at Phi Kappa Phi Conference
⊙ Presented at CURS Brown Bag Seminar Series
✓ Presented at Georgia Academy of Sciences Conference
Biological Sciences Honor Convocation Awardees

**Dianne C. Snyder Distinguished Service Award**
Each year a 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.

**Eriq Hearn**
Eriq has served as a peer mentor for supplemental instruction for Biology 1107 & 1108 and as a laboratory assistant for two different Microbiology courses. Additionally, he is a recipient of a PRESTIGE scholarship from the National Science Foundation. His future goals are to teach biology in Richmond County and continue his community outreach.

**Biological Sciences Outstanding Senior Award**
Each year, a senior biological sciences major that has a distinguished record based on classroom and laboratory performance and overall grade point average is selected by the faculty of the Department of Biological Sciences.

**Alyssa Outhwaite**
Alyssa has participated in research on marsh grass density, fish assemblages, marsh snail movement, crustacean responses to pollution, and biota response to changes in salinity. These experiences have taught her to think critically and analytically. She hopes to pursue a Ph.D. in Ecology or Environmental Studies and become a college professor.

**Emil K. Urban Student Research Awards**
These awards are named for Dr. Emil K. Urban, an internationally-known and highly-respected ornithologist who co-authored the definitive works on African birds, titled, *The Birds of Africa*. He led our department as chair for 27 years and left a legacy of quality-oriented academic programs and the student-centered culture ingrained in our Department. Each year, two 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, and one is given to a student whose research is laboratory-based.

**Laboratory Research – Atique Alam**
Atique has held leadership positions in the Biology Club and in the Minority Association of Pre-Medical Students. He has been inducted into the Tri-Beta and Phi Kappa Phi (PKP) honor societies. He has conducted undergraduate research looking at DNA stability of repeat sequences using the budding yeast genetic model system. He has presented his work at the PKP Research Conference, Georgia Academy of Science Conference, and the Southeastern Regional Yeast meeting. He plans to become a physician and will start medical school here at GRU next fall.

**Field Research – Jessica Padgett**
Jessica's research investigates the ecology and conservation of a rare, endangered plant species, *Pediomelum piedmontanum*. She has studied plant growth rates, survivability, metal tolerance, and accumulation. She has presented her work at the CURS Summer Scholars Research Gala, CURS Brown Bag Series, and the Association of Southeastern Biologists meeting. She was inducted into the Tri-Beta Honors Society and was the 2013-2014 recipient of the Cameron-Wylds Scholarship. She is currently exploring different graduate programs and job opportunities in the southeast.

**Academic Excellence Award in Biological Sciences**
This award recognizes excellence and achievement in academic performance for the highest science GPA.

**Kevan Khaksarfard**
Kevan is a senior biology major with a science GPA of 4.0. He has been inducted into Tri-Beta and PKP honor societies and is a recipient of a Katherine Reese Pamplin Scholarship and an ADP Scholarship. He has served in leadership positions in the Biology Club and served as a GRU Student Government Association Senator for two years. He has conducted undergraduate research and has presented separate works at the PKP conference, the Association of Southeastern Biologists Meeting, and the Wildlife Society Annual Meeting.

**Marjorie Marchman**
Marjorie is a senior Biology major with a science GPA of 4.0. Marjorie has been inducted into the Tri-Beta Honor Society and is a recipient of an ADP Scholarship. She has worked as a genetics teaching assistant and volunteers at Burke Medical Hospital and Georgia Regents Medical Center. Marjorie plans to continue her education and pursue a career as a nurse anesthesiologist or nurse practitioner.
ADP Scholars Program

ADP, Inc. has funded scholarships to assist excellent students in completing a Bachelor of Science degree in a STEM field. The 2015 ADP Scholarship recipients were:

Atique Alam  Berkeley Bolin  Shelby Buckner  Robert Fisher
Keri Jones  Kevan Khaksarfar  Marjorie Marchman  Ashton Stallings
Samuel Whitten

Tri-Beta 2015 Inductees

Beta Beta Beta (Tri-Beta) 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 GRU, 14 Biology majors were inducted into the Kappa Kappa Chapter of Tri Beta during a ceremony on March 31st in the JSAC Ballroom. Congratulations!

Precious Anyaoha  Jessica Bowles
Amanda Brown  Shelby Buckner
Clayton Dains-McGahee  Asma Daoudi
Venkatasai Devarapalli  Elizabeth Dylewski
Adrienne Kambouris  Vidya Medepalli
Sarah Ozturk  Alexandria Parham
Mary Roehre  Rachel Latrenouille

Professional Scholars Program

As the 2014-2015 academic year comes to an end, reflection on the past year shows it has been eventful for Professional Scholars students. Current students embraced and integrated into campus life through involvement in academics, philanthropic events, and research opportunities. We offer a “big shout out” to students who represented the program in 1828 Ambassadors, Biology Club, MAPS, National AIDS Week, and Take Back the Night 5K. Many thanks are in order to faculty members on the Summerville and Health Sciences campuses who have mentored students such as they research topics such as breast cancer and organic semiconductors. Students are not slowing down over the summer; many are partnering with faculty to conduct research, continuing current research, volunteering in the CSRA and home communities, shadowing physicians, and preparing for the MCAT. Finally, in the upcoming year, we look forward to welcoming and mentoring the third cohort of Professional Scholars students as they start their journey toward a career in healthcare.
Alumni Accolades

Brooks Keel, PhD (1978, 1982)
- Awarded the Georgia Regents University Distinguished Alumnus and Presidential Alumnus Awards for 2015.

Brandy Quarles (2010)
- Selected as a member of the Jag20 Class of 2015 for recognition as an emerging alumni leader.

Thomas Cullen (2006)
- Selected as a member of the Jag20 Class of 2015 for recognition as an emerging alumni leader.

Faculty Awards, Grants, and Presentations

Awards

Dr. Amy Abdulovic-Cui: Outstanding Young Faculty Award for the College of Science and Mathematics

Center for Undergraduate Research (CURS) Summer Scholars Program:
- Dr. Stacy Bennetts and Dr. Chris Bates in collaboration with Dr. Ashley Egan (Smithsonian Institute), with students: Amanda Brown, Liberty Buckley, and Antonio Colbert
  Conservation Genetics of the Dixie Mountain Breadroot (Pediomelum piedmontanum), a Rare and Endangered Legume from the Piedmont
- Dr. Eugenia Sabbatini with students: Sarai Hacker, Emilee Friedman, and Clayton Dains-McGahee
  Understanding the Mechanism of Adenylyl Cyclase 1-inhibited Proliferation in Pancreatic Cancer Cells Using Immunofluorescence and ELISA

Grants

Drs. J. Reichmuth, A. L. Abdulovic-Cui, C. Bates, S. Bennetts, and B. Saul with A. L. Mathews and R. Cohen A
(Georgia Southern University)
Holistic Assessment of Noyes Cut on the Satilla River Estuary
2016-2017 Georgia Department of Natural Resources Coastal Incentive Grant (Preliminarily funded pending NOAA budget review)

Dr. Bruce Saul
Ichthyofauna of St. Catherines Island
2014-2016. American Museum of Natural History and the St. Catherines Island Foundation Research Grant

Presentations


Dr. Chris Bates - Design and Implementation of an Upper Level Biology Course with an Emphasis on Exposure to Primary Literature – Georgia Academy of Science Conference, Milledgeville, GA, March 2015

Dr. Jennifer Bradford with A. Baldwin - NF-xB Signaling Between Stromal Macrophages and Breast Cancer Cells – American Association for Cancer Research, Philadelphia, PA, April 2015

Dr. Brandon Cromer with P. Coleman and E. Hobbs - Maternal Transfer of Mercury in Freshwater Turtles, A Study Using Non-destructive Sampling Techniques - University of South Carolina Aiken Lecture Series, Aiken, SC, October 2014

Dr. Eugenia Sabbatini - Role of Adenylyl Cyclase 6 in the Regulation of Pancreatic Secretion, Implication in Pancreatic Cancer - Department of Biological Sciences, School of Pharmacy and Biochemistry, University of Buenos Aires, Buenos Aires, Argentina, July 2014 AND Inhibitive Effect of Adenylyl Cyclase 1 and 3 on Pancreatic Cancer Cell Proliferation, American Pancreatic Association, Oahu, HI, September 2014

Dr. Cathy Tugmon - China the Places, the People: Mixed with Beauty and Pollution - Sierra Club Savannah River Group, Augusta, GA, January 2015
G.R.O.W. (Grow Our Own Wellness) Harrisburg

G.R.O.W. Harrisburg is a coalition of community partners who share a common interest in improving community health and well-being through education and engagement. This initiative began in 2011 with the Veggie Truck Farmers Market as a way of providing fresh, affordable, locally produced fruits and vegetables to the residents of the Harrisburg community. Since last fall, 100 raised beds were installed, free of charge, for families as Home Teaching Gardens. In addition to the raised-bed frames, families received organic soil mix, compost, seedlings, tools, and mentorship if needed. The Local Foods Classroom in Harrisburg supports this effort by making residents aware of our educational programs and services. This May, we will begin the Fruit and Veggie Prescription Program, a collaborative effort with the Medical College of Georgia with the objective of providing free fruits and vegetables for families who are at risk of diet-related illnesses. The next phase of the initiative is to establish an urban agricultural education center and urban fruit forest. I am delighted that our department can play a very small part in making this vision a reality. And as always, a big thank you to the amazing Kim Hines!

Sincerely,
Donna J. Wear, Ph.D.
Professor
Department of Biological Sciences

A GRU Student’s Story

All my life, I knew I wanted a career in medicine, and each choice I made has been towards that goal. One such choice was deciding on the right university in which to obtain my Bachelor's degree. At the age of eighteen, I had been accepted at several prestigious universities and had to make a tough call on which one I should attend. After weighing my options, and determining that my overall goal was indeed to become a medical doctor, I decided that I should attend a university that was already associated with a medical school and that was also affordable. So I chose Georgia Regents University. Thankfully, the decision to join the student body of GRU as a Biology major very quickly became one of the best decisions I have made in my life.

The faculty I have had the pleasure of attending class with at GRU genuinely care about their students, and I am confident in saying I could never have succeeded without them. The professors would become more than just reciters of the PowerPoints in the front of the class, but interactive leaders that helped create the links between the students and the subject material. From working as a teaching assistant for a plethora of professors in both Biology and Chemistry, I learned that even behind-the-scenes professors were working diligently to ensure that utmost paramount education to their students.

One professor I fell under the mentorship of was Dr. Brandon Cromer. One of the best professors I have ever had, he taught me the values of life by enjoying every second of it and never undervaluing the little things. We performed ecological research together on mark-recapture of tree frogs in the local area. Although this research was not closely related to the medical degree I intended to acquire, I desired a well-rounded education, and the subject interested me. Over the years, our research was presented at three separate conferences earning me a first place prize as well as an honorable mention.

Looking retrospectively, I know I made the right decision in attending Georgia Regents University. I have many more tests and exams to study for in my upcoming years, and I rest easy knowing I have been well prepared by the faculty. I know that the values instilled upon me will follow me throughout medical school and beyond. It is sad knowing this chapter of my life is closing, but I am happy being able to look back with a smile.

Kevan Khaksarfard
GRU Class of 2015
Biology Club Corner
The Biology Club strives to intensify the passion for biological science while simultaneously creating friendships, networking, and volunteer opportunities. The goal of the club is to function as a unit and support one another academically and socially. The Biology Club meets bimonthly in addition to other special events on and off of campus. In the fall, the Biology Club hosted a “Twister on the Lawn” event as a fundraiser. Students enjoyed a nice outdoor break as they played this game on the science lawn. This spring, several members of the Biology Club participated in a river clean up through the Savannah Riverkeeper organization. Students spent about three hours cleaning up the surrounding area at Lake Olmstead. Items such as aluminum cans, plastic bags, and bottles (among other things) were collected and sorted, as some of the items could be recycled. On campus, the annual plant sale took place in early April and a portion of the profits benefited the Harrisburg Project. The Harrisburg area (near downtown Augusta) is a rundown, old mill-town that needs improvement. Proceeds from the plant sale will specifically contribute to the enrichment and development of an outdoor playing area for the community. What is special about this project is that it is local, and those that will be benefitted are fellow Augustans. Additionally, several members of the Biology Club desire to obtain volunteering hours whether for graduate school applications or for other program requirements. As a means to cater to this request, a listing of volunteering opportunities and corresponding contact information has been created. Listings range from ecology-based opportunities to clinical services. The club participated in an Earth Day celebration at Phinizy Swamp in April, and it plans to participate in other volunteer opportunities during the summer.

MAPS (Minority Association of Pre-Med Students)
MAPS is a sister organization to the SNMA (Student National Medical Association) at the MCG campus. Its mission is to guide and support premedical students. Ultimately, its purpose is to enrich academic and professional development in order to prepare students for medical school matriculation and participation in the medical workforce. The major goals of the GRU MAPS chapter are to:

- Increase diversity in the medical field that will lead to increased healthcare services among diverse populations and communities.
- Bridge the gap between undergraduate studies and health professional level programs, with focus on enhanced pre-medical preparation for competitive medical school entry and successful matriculation.
- Raise awareness of the health professions in the community especially among underrepresented populations.
- Provide minority communities with resources and information about general healthcare and preventative medicine that will contribute to eliminating health disparities.

Our meetings provide an opportunity to network with MCG representatives and receive information pertaining to the application process, student life, and undergraduate opportunities on the Health Sciences campus. At our first meeting, we had representatives from the medical college, dental school, nursing school, and allied health programs conduct a “meet and greet” with our members. We also participated in a mixer with the medical students at the new Harrison Building. MAPS recently organized a question and answer session pertaining to the changes on the 2015 MCAT. Our members had an opportunity to volunteer at Igniting the Dream, a pre-medical conference that hosted college students from around the state. We plan to hold a suture clinic where medical students will teach members of our organization the basics of suturing, using a banana. We have participated in multiple free health clinics run by both the medical and dental students at MCG. Our future aspirations include creating job shadowing opportunities, providing tours of the Health Sciences campus, and providing opportunities to volunteer at the newly opened Latina free clinic.
Study Abroad Experience

The GRU Study Abroad Office offers students the ability to step out of the classroom and experience biology in its most natural element. In the summer of 2014, Dr. Bran Cromer, Dr. Faith Wiley, and 21 students ventured to Ecuador and the Galapagos Islands to study and observe equatorial and marine biology. Upon arrival in Quito, Ecuador, we were immediately captivated by the mountainous terrain and realization of our high altitude at about 9,350 feet above sea level. In Pichincha, we visited the actual equator and one that was falsely deemed the equator by a French explorer. At the former, we balanced eggs on nails, struggled with walking a straight line, and swirled water down a drain in both clockwise and counterclockwise directions. To me, it was so amazing to have simultaneously stepped one foot in the Northern Hemisphere and the other in the Southern Hemisphere. On the mainland, we interacted with the indigenous people, and some students even had the chance to try the national delicacy, guinea pig! My favorite moment on the mainland was hiking through the Mindo cloud forest and observing the hummingbird species. Another astonishing excursion was touring a rose factory and seeing the process from growing to shipping. Initially, I expected the Galapagos Islands to be biologically diverse; to my surprise mainland Ecuador was beautifully unique in landscape and biodiversity. Moments after arriving in the Galapagos Islands, I was wowed with the teaming life that was omnipresent from our first boat ride. The waters were turquoise and so inviting. Our days on the islands consisted of snorkeling in alcoves, visiting a tortoise reserve, riding boats, and sampling freshly prepared food.

Personally, I was so impressed with the variety of fresh fruits and vegetables. The passion fruit, blackberries, and avocados were exceptionally delicious. Many of the meals excluded processed food and represented the naturalness of the country. In the islands, I was surprised to see the rich and diverse abundance of flora and fauna in such close proximity. For example, blue-footed boobies, marine iguanas, sea lions, and sally-light foot crabs were often found together along the rocks. While snorkeling, I drifted with a sea turtle for about one and a half hours, something that only seemed like a dream prior to arriving on the islands! For most biology students, the Galapagos Islands have only appeared in classroom lectures, so the ability to travel to this exotic land was surreal. I felt as though I was paying homage to all of the inspiring and diligent work of Charles Darwin and other naturalists. The raw nature of both the mainland and the islands honed in on the notion that science is all-encompassing. I am a Cell and Molecular Biology Major, yet seeing the rich ecology was revitalizing and gave me the realization that all fields link together in some capacities. My studies and memories as a biology major will forever be touched and enriched by the warm days spent in the diverse lands and islands of Ecuador.

-Sarah Ozturk
GRU Class of 2016
Undergraduate Research at GRU

In 2013, while waiting for an appointment with my advisor, Dr. Bennetts, I decided that I wanted to get involved in the undergraduate research program at GRU. I had no idea what type of research I wanted to do, who to ask about research, or what kind of work was really involved. All I knew was that I wanted practical experience beyond what was taught in class and something that allowed me to investigate problems on my own time and in my own way. (You can't listen to music in the regular classroom laboratory settings.) During that advisement appointment, I asked Dr. Bennetts about the different types of research that were being conducted by students in the Biology Department. I described to her my interests in studying plants and conservation. This conversation eventually turned into the research that would last for two years on a rare, endangered endemic plant species called *Pediomelum piedmontanum* (Dixie Mountain Breadroot).

It seemed almost instantly that this species had become my project and responsibility. From the very beginning, Dr. Bennetts told me that this species has never been propagated to maturity and that it was a fragile plant with unique growth requirements. Thus, I wanted to reveal its mysteries even more! In order to obtain more insight on this recently discovered species’ unique growth habit and nutritional requirements, I consistently watered hundreds of seedlings about every other day, including some holidays; applied solutions with heavy metal concentrations; collected a massive amount of leaf samples in the field; measured plant growth and survivability in the field and in the lab, as well as numerous other arduous tasks. During these two years, this research opportunity has not only taught me to conduct experimental research using the scientific method, but also to speak with confidence in front of large crowds at conferences. I learned new skills, such as statistics, and specific laboratory techniques, like the zincon colorimetric test. I also learned to not give up even if it looks like my seeds will never germinate or my plants died after two months in an experiment. I also had the chance to collaborate with amazing people who became some of my closest friends.

I had the rewarding opportunity to participate in several professional experiences, which included presentations at the Association of Southeastern Biologists 74th (2nd place Tri Beta oral presentation) and 75th Annual Meetings), the 2013 CURS Summer Scholarship Program, the 2013 Georgia Academy of Sciences Meeting, and the 2013 GRU Brown Bag Series. For two years, I remained committed to my research, which was attained through hard work and much trial and error. I am honored to have received the Emil K. Urban Student Research Award in Field Biology this year. Through the support of Dr. Bennetts, I was given so many more opportunities than I had ever imagined possible for an undergraduate.

Jessica Padgett
GRU Class of 2015