

eGEOTIGER

January 2021



New Faces



Natalia Malina
Post Doctoral



John Fronimos
Lecturer



David Brink-Roby
Lecturer



Katie Brown
NRT Admin

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Greetings from the Chair!



I hope this finds you doing well. The year 2020 has been a particularly challenging year for everyone. Despite the challenges, our outstanding faculty, staff, and students have made extraordinary achievements in all aspects of our mission. The year 2020 also marked in history as a period of great transitions in higher education. Our

faculty and graduate students have learned to utilize modern education technology with various modes of instruction, allowing students to learn in face-to-face classroom and lab, or from remote locations, or recordings that have been made for those not able to participate live.

We keep strengthening our academic programs to provide high quality instructions and resources to students. It is exciting news that the Auburn Board of Trustees and administrators have finally approved the construction of a new building which we have waited for years to move into. The ideal building would provide spaces to house all programmatic elements of Geology and Geography and to incorporate future growth. Besides the new building, the department is very excited about other new changes. To enrich our curriculum, our faculty, led by Dr. Chandana Mitra, also worked steadfastly in 2020 to develop a new science core course sequence in Global System. The courses emphasize climate and environmental changes and how they affect our land, water, atmosphere, and ecosystem, and how humans interact with these processes.

We proudly offer a new GIS Undergraduate Certificate last year. In 2020 we welcomed four new faculty members and staff, including two lecturers in Structural Geology (Dr. David Brink-Rope) and Paleobiology (John Fronimos), a post-doc in Organic Geochemistry (Natalia Malina), and an administration staff (Katie Brown) managing our large NSF NRT grant and meetings. In 2020-2021, we welcome a record number of graduate students who enrolled (40+) or applied (70+) to our programs. All new faculty, graduate students, and staff have added impressive talent and diversity to the Geosciences family. Geosciences will host the 2021 GSA Southeast Section Meeting (100% virtual) at Auburn on 1-2 April 2021. So, as you can see, a lot of great things are happening in our department.

Many alumni and friends contribute towards the professional development of our students by helping them better understanding the practice in Geology and Geography profession. And, on behalf of the department, I would like to express our deepest appreciation to our successful graduates who continue to promote the values of our department and Geoscience profession. Let us know if you have interest in connecting with the department and GAB to advance our program. I thank all of you for your continued support, and I will share more exciting news as the department continues to grow and evolve.

Ming-Kuo Lee
Professor and Chair



Auburn's first NRT-award virtually connects students about climate change by Maria Gebhardt

In September 2019, Auburn University received its first \$3 million grant from the National Science Foundation Research Traineeship (NRT) to train students to impact climate resiliency in the southeastern United States (U.S).

The interdisciplinary team, which hopes to include students from the Department of Geosciences, the College of Sciences and Mathematics (COSAM); College of Agriculture's Crop, Soil and Environmental Sciences; and Agricultural Economics and Rural Sociology; partnered with North Carolina State University's USGS supported Southeast Climate Center Adaption Science Center.

"Our first week-long virtual immersion meeting was held from August 3 through 7," said Katie Brown, program coordinator for the NRT project. "It was a great success!"

The Climate Adaptation and Resilience Immersion (CARI) meeting was held online through Zoom and Slack and included students from Duke University, University of Tennessee, University of Florida and University of South Carolina.

"The immersion meeting is aptly named because of the robust line-up of topics the science professional speak on and the group exercises the students perform throughout the week all focused on providing context for some of the emerging challenges in conservation and climate change impacts in the southeast," Brown added.

Karen McNeal, professor in Auburn University's Department of Geosciences, is the primary investigator for this grant that offers students hands-on experience with climate change including studying natural systems and man-made infrastructures.

"The meeting took many weeks of advance preparation for the new way of conducting training but it went almost seamlessly due to the dedicated professionals from AU, including our very own Katie Brown, and NC State. There were more than 27 graduate student participants and numerous speakers that joined throughout the five-day virtual meeting. Students heard from experts in climate modeling, co-production, science communication, invasive and at risk species, tribal engagement, and from numerous stakeholders that apply climate science to their everyday needs and projects.

They had the opportunity to learn about each other and start the year off with the best foot forward that we could provide in these circumstances and I am excited to see all of the great things they will do in the coming years at Auburn and around the issues related to climate resilience in the southeastern U.S."

The students that participated in the virtual program had a chance to learn about climate change and connect with each other.

"Having a formal presentation and then breakout group activities allowed me to fully immerse myself in this topic, while learning about the graduate students that I attended this meeting with," said Haven Cashwell, a second-year master's student in geology.

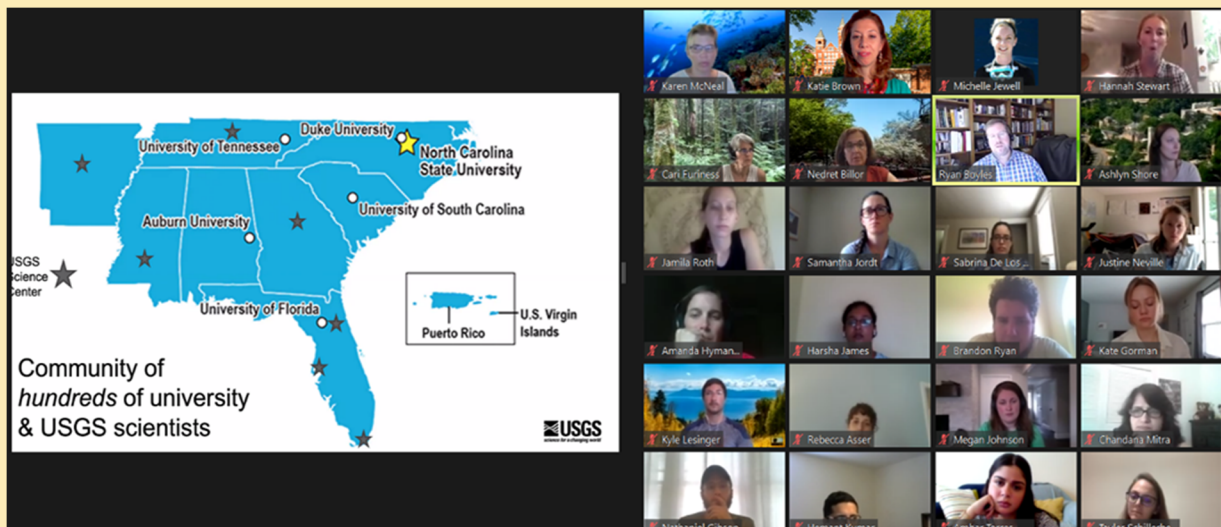
Taylor Schillerberg, a second-year doctoral student in Crop, Soil and Environmental Sciences shared how the data and information presented an opportunity for new perspectives and viewpoints.

"I learned so much about how climate analyses are used for stakeholder settings, impacts of climate on species, sea-level rise, and science communication with different audiences. By being part of the intermingling cohorts in the breakout groups, gave us the opportunity to cross-communicate, share ideas and exchange different background perspectives," Schillerberg said.

The five-year grant runs through September 2024.

"Although the conference was held online this year, it intentionally still had comradery opportunities for the participants to build up their network with virtual games, daily small group discussions, fireside chats, and virtual socials with other universities' graduate students, science professionals and past fellows," said Brown.

Applications will be accepted starting in September 2020 through January 2021 for next year's trainees and can be accessed online at http://www.auburn.edu/cosa/climate_resilience/index.htm.



Auburn's first NRT-award virtually connects students about climate change The CARI Meeting

What do you think is the biggest global change issue we face today?



It was announced last year that the National Science Foundation Research Traineeship, or NRT, was awarded as the first at Auburn and in the state of Alabama, to train graduate students to help build resilient communities that are prepared for, can effectively respond to, and can quickly recover from damaging hazard events in the southeast US. This 5-year program is interdisciplinary with 8 faculty from varied schools including Geoscience, Forestry, Mathematics, Agriculture's Crop, Soil and Environmental Sciences, and Rural Sociology, Office of Inclusion, Equity, and Diversity and affiliations in Engineering developing about 85 graduate students including 18 funded Trainees by the grant. Fall 2020 the program welcomed their first cohort of 7 Trainees from varied schools. They have already participated in a 5-Day Virtual Immersion Experience in conjunction with the Southeast Climate Adaptation Science Center, taken a course on Climate and Hazard Resilience by Dr. Chris Burton and advanced their Metacognition, Mentoring and Environmental Justice knowledge and skills in the NRT fall workshops.

In addition, "The graduate students will be analyzing and reviewing real-world applications during their internships," Dr. Karen McNeal, PI for the program said. "They will work with local and regional stakeholders including organizations and companies that will be directly impacted by climate change". Most recently the NRT held their advisory committee meeting where the board helped to identify some of these stakeholders with which the trainees could connect. Thus, the first year, although affected by Covid-19 pandemic, has been busy and successful for these Trainees offering them unique graduate training opportunities. Applications will be accepted Sept through Jan 4th, 2021 for the next cohort including some funded positions with a generous \$34K stipend for up to 2yrs. For more information and to apply for this program check out the NRT website http://www.auburn.edu/cosam/climate_resilience/index.htm

Effects of COVID-19 shutdown on environment amid 50th Earth Day



Earth Selfie – The tendency to recognize human faces in things that are not human is common. Can you see the eye, nose, and mouth in this satellite image of Morocco? The face captured in this “Earth Selfie” appears to be quietly watching over the waters just off its coast. The city of Agadir is underneath the chin, and the irrigated farms of the Souss Valley appear in red.

This year is a special year because it marks the 50th installment of Earth Day. This year looks different due to the world following stay-at-home ordinances. Some may say the environment has had time to recover in the wake of far fewer emissions from automobiles. Chandana Mitra, an associate professor in the Geoscience Department, gives her thoughts about what she says are the positive byproducts that have come about by the coronavirus-forced lockdown and what it could mean going forward.

In honor of Earth Day, an event was hosted by the *Jule Collins Smith Museum of Fine Art* called “Mother Earth as Art”.

You can check out these exhibits at the following link: jcsm.auburn.edu/exhibitions/future-of-our-beautiful-earth/



A Short Introduction to GeoFIDE

by Dr. Jamie L. Worms and Stephanie L. Shepherd

In summer 2020, the COSAM Office of Inclusion, Equity, and Diversity launched a new task force designed to address the structural and institutionalized discrimination on campus. This task force, comprised of faculty, staff, and graduate students met every two weeks to develop a college-wide Equity, Diversity, and Inclusion Strategic Plan. The purpose of this plan was to identify and initiate policies to dismantle the structural inequities that adversely impact marginalized communities within the COSAM. Several participating Geosciences faculty members and graduate students deemed this initiative so important that in fall 2020, we established our own departmental task force, GeoFIDE (Geosciences for Inclusion, Diversity, and Equity).

GeoFIDE's first tasks were to create a departmental Diversity Statement and to develop our own Geosciences-specific 5-point plan. Our Diversity Statement is one that acknowledges our department's commitment *"to promoting a diverse, inclusive, and equitable university community where we can learn and thrive without fear of discrimination" while our Strategic Plan was developed to ensure that our Diversity Statement is upheld and continuously improved. Our Departmental Goals are:*

- Recruit, retain, and establish a diverse community of students, faculty, and to invite speakers from minoritized communities and Historically Black College and Universities.
- Create pathways through our department by highlighting key programs, internships, scholarships, student organizations, and other academic resources for underrepresented groups.
- Increase the sense of belonging in the department and establish accountability structures by including safe counter spaces for students and faculty and by hosting informed discussions on current diversity, equity, and inclusion related issues.
- Incorporate environmental justice in department-led campus events and in the curricula.
- Require Inclusion, Equity, and Diversity statements for all job applicants.

Despite its nascency, GeoFIDE has already invited speakers from minoritized communities to participate in our colloquia and has taken steps to create safe spaces to discuss how certain cohorts (faculty, staff, and graduate students) perceive gender biases in our department. GeoFIDE has also created a preliminary website (<http://auburn.edu/cosam/geofide/index.htm#>) to clarify our mission and to showcase our endeavors. And, most recently, owing to the COSAM OIED Inclusive Excellence in STEM Award won by our task force chair Dr. Stephanie L. Shepherd, GeoFIDE is in the process of planning a screening, followed by a panel discussion, of the documentary, *Picturing a Scientist* tentatively scheduled for March 2021. Please check out our website for continued updates as well as to join us for this special event!

Overall, the newly established GeoFIDE recognizes that the commitment inclusion, diversity, and equity is fundamental in our classrooms, in our research, and in our communities. To adequately prepare students to lead in a multicultural world, they must be able to engage and respect a rich variety of perspectives, outlooks, values, and beliefs that are different from their own. To support this diverse community, we must also be inclusive. As our Diversity Statement suggests, it is important to promote a community where discrimination is not tolerated. However, it is not enough simply to recognize that structural discrimination exists and choose not to promote or tolerate it. We must actively create equity by working to close any preexisting gaps in education, income, or accessibility to ensure that the changing needs of our community are being met. This commitment to inclusion, diversity, and equity will take time and dedication but GeoFIDE is certainly up to the task! We look forward to meeting you all and working with you to create an inclusive, diverse, and equitable Geosciences Department.



Outdoor Classes at the Arboretum

Teaching outside during the pandemic was a big hit. Chandana Mitra, associate professor in COSAM, taught her climatology course for the Department of Geosciences at the arboretum.

“To me the Arboretum open pavilion is the ideal location to teach a climatology class, a class discussing the weather and climate patterns, and also maintaining enough social distancing. The plan is to have the climatology class once or twice every month till the end of the fall semester at the arboretum. Morgan has taken a lot of effort in making the pavilion a teaching friendly place. It has made the experience more conducive to teaching.

I think there should be more classes like this at Auburn University which would foster effective teaching for the students and a different atmosphere for the instructor too,” Mitra explained. Students were able to attend class and be actively engaged.

“I found the outdoor environment to be lovely, and it was much more conducive to interactive discussion than Zoom seems to be. Overall, if I could have all my courses in the arboretum, I'd be thrilled,” said Laurie Pisciotta, a student in the climatology class.



Social Activities with our Graduate Students by Kiley Coan

A walk with the Graduate Students to the Red Barn. Frisbee, soccer, and football were some of the activities enjoyed while safely social distancing.



Line Dancing "The Git Up"



Croquet Game, Lorraine Wolf as the Ref

GeoClub at Chewacla State Park



GeoClub decided they wanted their first adventure to be at Chewacla State Park! We voted for representatives of the club and enjoyed some food to get to know each other. Graduate and undergraduate students bonded and discussed courses, research, and great local areas to see beautiful geology. Several undergraduates enjoyed learning about the research of the graduate students and wanted to pursue research with them or getting more involved with the department! Additionally, we planned our next adventure, where many more students can come and experience what it means to be a part of our department!



GeoClub



Soil Sampling

GeoClub National Fossil Day



GeoClub supported Fossil Day 2020! A limited number of students were able to go the Auburn University's Museum of Natural History to witness several fossil specimens not yet released to the public. Students also witnessed a professor opening a large rock to find a nearly fully preserved tortoise! GeoClub, with the help of Dr. Fronimos, created an Auburn Fossil Day website which will be a growing project for bringing public awareness to the museum and department!

This year, GeoClub has been under the guidance of Bishop Robbins and Andrew Lipscomb, who have taken the lead in providing a way to celebrate this event despite the limitations of social distancing. They have assembled a website <http://auburn.edu/cosam/fossilday/fossils.htm> showcasing the fossils of Alabama. This is intended to be a resource for community outreach that can continue to grow overtime.

National Fossil Day is an event that celebrates America's fossil resources and what they tell us about the history of life on Earth. This event at Auburn focuses on the fossils of Alabama, from sea-shells to trees, dinosaurs to whales.



**Happy
Fossil
Friday!
Skye
Walker**

The Midshipman's Miracle by Kate Larkin

The last thing Cole Burton remembers about May 24, 2018 was standing on the cliffs at Vulcan in Birmingham, Ala. looking down over the city. He remembers seeing Children's of Alabama and UAB Medical Center. He could never have known that just hours later, he would be in that very emergency room, fighting for his life.

Cole was with his Auburn University geology class on a research field trip. After their stop at Vulcan, the group traveled to Glencoe, Ala. where they were studying rock formations off of Highway 431 when an impaired driver left the road and hit Cole and another student, Nick Hood.

Tragically, Nick did not survive his injuries, passing away a few weeks after the accident. Cole suffered internal injuries, including severe head and brain trauma, resulting in a very bleak prognosis.

"Five days in, the doctors came to us and told us Cole would most likely not have a meaningful recovery," Cole's mother, Tina Burton, said. "He was unresponsive. They offered the option to discontinue medical services."

Tina, her husband and Cole's father, Charlie, and Cole's sister, Libba, gathered in the back of Cole's hospital room and prayed. They felt an overwhelming sense of peace and all agreed if Cole was going to die, it would be God's decision, not theirs. So they told the doctors to do whatever they could to save Cole.

Three weeks later, on June 15, 2018, Cole awoke from his coma and six days after that, he was transferred to the intensive care unit at the Shepherd Center in Atlanta. The first thing he remembers is being told he was in a rehab center.

"I demanded a drug test," Cole said. "I was adamant that I had not used drugs and I wanted to be tested. I was afraid I was going to lose my ROTC scholarship. I could not comprehend that it wasn't in a rehab center for drug addiction."

That was the last time Shepherd was referred to as a rehab center; from then on it was a therapy center and Cole settled in and began his long, improbable journey.



From the beginning, every day was a struggle; a test of endurance, perseverance and determination. Cole was compliant, willing to do whatever was asked of him, no matter how simple or how hard. Because of his ROTC training, he was in great physical condition before the accident, but now almost 40 pounds lighter, he was basically starting over, a shell of the person he was just a few weeks earlier, but still ready to face each new day with a can-do attitude.

"I always had a peace that tomorrow was going to be better than today and the next day would be better than tomorrow," Cole said.

For the next year, Cole worked hard to regain everything he had lost.

The ability to swallow. The dexterity to write. The competency to speak. His infectious, playful personality.

"We were told that often patients with severe head trauma will emerge with a totally different personality," Tina said. "But, Cole was still Cole."

Cole set three initial goals for himself: Get his "six-pack" abs back, run in the Peachtree Road Race and pass the physical training (PT) test to get back in Navy ROTC at Auburn.

On July 4, 2019, Cole, ran – or as he says, "jalked" – his way through the Peachtree Road Race in Atlanta. He worked hard to reestablish his six-pack and as of this writing, all he needs to complete his PT is to decrease his running times. He has his driver's license back and, though 18 months ago, it seemed impossible, this amazing young man, who, scientifically, had no chance of a meaningful recovery, took a "tester" class in summer of 2019 to see if he could handle schoolwork. He took chemistry – and made a B. So, in the fall 2019 semester, he enrolled in Auburn again, this time with 11 hours, picking up right where he left off as a geology student.

It wasn't supposed to turn out like this; the doctors who treated Cole at UAB were stunned when he went back to visit.

"They couldn't believe it," Tina said. "One of them seriously looked like he had seen a ghost. They called the head of neurology to come see. He told Cole, 'I can't explain your recovery; you have definitely received a miracle. God has great plans for you.'"

Cole continues to improve every day, knowing his recovery is far from complete.

"You don't choose your journey, your journey chooses you," he said. "I'm just trying to make it the very best journey it can be."

New Faces in the Department

Introducing

John Fronimos

Lecturer

I am a new lecturer in the Department of Geosciences as of fall 2020. I am from San Antonio, Texas, and worked most recently at Vassar College in New York. It is good to be back in a warmer climate!

My area of specialty is paleobiology, with a research focus on dinosaur evolution and extinction. I am most interested in the long-necked sauropod dinosaurs, which were the largest land animals of all time. Students involved in this work experience a mixture of traditional fieldwork and digital data collection techniques. In my spare time, I am often in nature, hiking and observing modern dinosaurs (that is, birds!).



Introducing

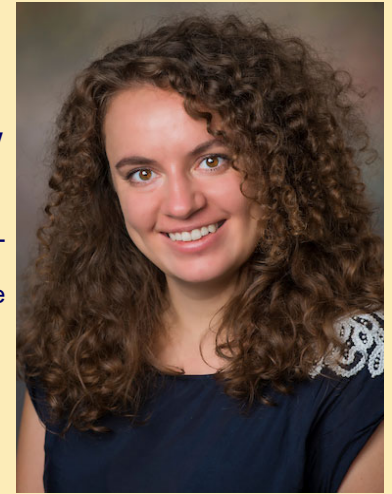
Natalia Malina

Post Doctoral Fellow

I am a new Post-doctoral Fellow in the Department under the supervision of Dr. Ann Ojeda. I moved to Auburn from the Isotope biogeochemistry Department at the UFZ Helmholtz Centre for Environmental Research (Leipzig, Germany), where I worked as a visiting Post-doctoral fellow under a DAAD grant.

My research interests are investigating mechanisms of toxic organic contaminant transformation in water under complex chemical, physical and microbiological factors. It was quite challenging to move across two countries in the middle of COVID-19. My plans were delayed, but I am so glad to finally become a part of the Geoscience family. The Department has warmly welcomed me, and I have never felt isolated.

This year, I have started my first experiments and tamed all the instruments in our AU Contaminants group. I look forward to the exciting times ahead.



John Fronimos giving a field lecture, Big Bend National Park, Texas, spring 2018.

Introducing

David Brink-Roby

Lecturer

I moved to Auburn in August after completing a PhD in structural geology at the University of Rochester, New York. My research focuses on modeling fluid migrations within mountain belts, with applications for predicting the location of groundwater, geothermal, and hydrocarbon resources. I also do work on modeling fold thrust belt development and subterranean coal-seam fire spread. I am enjoying developing undergraduate-focused research projects in both field and experimental structural geology at Auburn, and I'm looking forward to participating in Auburn's geology field camp in the summer. The Geosciences Department has been incredibly welcoming, and I look forward to working with everyone in person when we can gather again!



New Faces in the Department

Introducing Katie Brown Administrator, Academic Pro- grams NRT

Katie Brown is the new program coordinator for the NRT program on Climate Resilience. Her role at the university also encompasses offering conference support to grant funded events withing COSAM under the ADR office initiative. She received a degree in Hotel Restaurant and Tourism Administration with a Business Management Minor from the University of New Orleans after studying there and at Auburn University. She received the sought-after certified meeting professional, or CMP, designation while working as a senior convention manager in Orlando. She looks forward to using her 15 year plus career in event planning and operations to assist the geoscience department in their outreach programs and professional conferences. Katie and her family have lived many places throughout the south but look forward to calling Auburn a forever home. The Brown family enjoys hiking here and the ability to bike their youngest to school.



Amelia and Jacob



**Hiking Pulpit Rock in
Norway, 2019**

Faculty and Staff News

Adam Payne Lecturer

In 2020, I published the paper "From Old West to Cosmopolitan: Changing Narratives of Oklahoma City Tourist Guidebooks" in *Tourism Review International*. I utilized thirty years of tourist guides to explore the changing narratives of Oklahoma City. While tourist guidebooks often reflect shifts in the changing economics, politics, and culture of a region or city, I focus on the rise of entrepreneurial urbanism on Oklahoma City and its influence on guidebooks. The (re)construction of a place image through entrepreneurial policies resulted in the promotion of a select package of facilities and the highlighting of specific attributes that city leaders deemed important. My research illustrates the shifting tourist narratives in Oklahoma City guidebooks from overt Old West constructs to constructs rooted in cosmopolitanism in light of entrepreneurial agendas.



Lorraine Wolf

Lawrence C. Wit Professor and Director of Undergraduate Research

The Good, the Bad, and the Ugly—that pretty much sums up the 2020 year, although not necessarily in that order. The “bad,” as you might have guessed, was the coming of the coronavirus and its implications for our department, our college and our community. Our friendly, collegial, and fun-loving atmosphere was sucker punched as we all succumbed to remote learning and social distancing. The “ugly,” in my opinion, was best represented by the political scene (no matter on which side of the fence you are). But as there is always a light at the end of every dark lava tube (that is, if you turn around), we can be thankful for the “good” that crept in while the chaos wasn’t looking. The good consists of our



students who have finished their degrees and gone off to jobs; our continuing and new students, who make teaching interesting and fun; my colleagues (especially the new ones) who rose (with good humor) to the challenge of using new technologies to support quality instruction; our leadership and departmental staff, who guided our way forward with understanding and accommodation; and our alumni, who stand firmly behind us. The good is also represented by my own students, Can Guven (continuing) and Steffen Matthews (new), who—continuing the legacy of former students—are providing insight into the mysteries of the New Madrid Seismic Zone. Finally—the “good for them” is represented by my long-time colleagues, Mark Steltenpohl, Chuck Savrda, and Ron Lewis, who took the retirement plunge this year after over 90 collective years of remarkable service to the department. I wish them the very best in the years ahead.

Matthew DeCesare

Manager, Laboratory Research

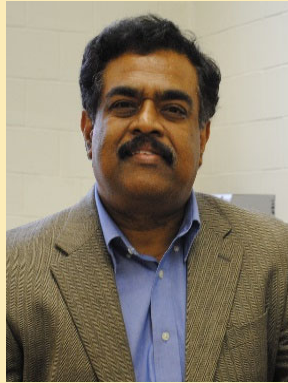
This has been a dynamic year to say the least! I have been managing the Isotope Ratio Mass Spectrometer Lab where I’ve analyzed thousands of samples from Geosciences faculty, students, and from outside the department and University. This work has helped generate data for several projects, including ongoing work with the School of Fisheries, Aquaculture, and Aquatic Sciences. The data have contributed to two manuscripts submitted for publication by Dr. Savrda and Dr. Medina for which I am co-author. In addition, I contributed to writing an NSF Instrument and Facilities grant proposal with Dr. Ojeda. Moreover, I’ve enjoyed the majority of 2020 as co-manager of Dr. Bilenker’s Economic Geology and Geochemistry Group. After transplanting Laura’s lab into Dr. Lewis’s lab space after he retired, I built the new Experimental Petrology Lab in Beard Eaves Coliseum. The construction of high-pressure/high-temperature equipment took months of hunting down parts, working with vendors, fabricating pressure lines, and calibrating the equipment. I’m happy to say everything is working, the lab is online, and much magma will be made in 2021!



Faculty and Staff News

Ashraf Uddin

I was humbled once more when I was selected for the *Dr. Robert B. Cook Endowed Professorship* effective October 1, 2020. I have also been appointed to serve as a *Member at Large on the Research Grants Committee* of the Geological Society of America from 2020 to 2023. Our PAIR project with Dr. David King funded by Auburn



University on carbon sequestration has been going well.

Nora Lopez continued to work on the project and presented at recently completed GSA national conference. She also received grant support from the Gulf Coast Association of Geological Societies. **Jasmine Naher (MS '20)** completed an MS thesis on detrital history of Oligocene sediments from Sylhet trough (Bengal) and Shillong areas (India).

Mahfuj Rahman (MS' 19), co-supervised with Dr. Ming-kuo Lee, continued his success in the PhD program. He was recently honored as he received a best poster award at GSA national meeting 2020. Mahfuj also published a peer-reviewed paper on his MS thesis research on Macon County, AL. **Sharif Mustaque** made progress with his PhD project on eastern Gondwanan sedimentation and tectonics. A new graduate student (**Mahir Tajwar**) will join us in January 2021. I was also able to initiate a project with the Department of Geography and Environment of University of Dhaka on sediments drilled

and dredged from the Swatch of No Ground, a submarine canyon which delivers Himalayan detritus to the Bengal Deep Sea Fan.

Our efforts with the Imperial Barrel Award (IBA) competition ended very well with continued success in 2020. The team consisting of **Jamie Braun, Lucas Monroe, Nora Lopez and Marcus Schneider** was able to successfully win their group. We started taking part in IBA competition since 2011. This year the team was able to bring home another IBA trophy for the third time in a row! See below a group photo of the happy winning team:



Auburn IBA winning team from 2020. From left to right, Marcus Schneider, Jamie Braun, Nora Lopez, Lucas Monroe, and Dr. Ashraf Uddin

2020 Newly Elected GSA Fellow

Ashraf Uddin



Continuing Faculty Members

Laura Bilenker

Assistant Professor

The Economic Geology/High-Temperature Geochemistry Research Group has had an interesting year! While the pandemic threw a wrench into our big field work and analytical plans, we made the best of 2020. This would not have been possible without motivated graduate students and undergraduate assistants.



Lucas Monroe, who is now a second year MS student, was a member of our award-winning IBA team and successfully proposed his research on the Florida Mountain silver/gold deposit in SW Idaho. **Marisa Barefoot** (BS 2019) joined the group in Jan. 2020 to work on a new collaborative project with the University of Puerto Rico, Mayagüez wherein we are investigating iron deposits on the island. In April, Marisa was awarded a competitive Society of Economic Geologists Fellowship and a Research Grant from the Geological Society of America (\$3000), and she gave a great proposal presentation to the department in September. In August, the group gladly welcomed **Elyssa Rivera**, who came to us from Sam Houston State U. She began MS research on developing molybdenum isotopes as a tool for understanding molybdenite occurrences, particularly in high-temperature systems. We were also lucky to have Geology undergraduates **Will Ebbert**, (BS 2020), **Carly Glidewell** (BS 2020), and **Daniel Wilson** (Apprentice) assisting with our projects in Spring 2020.

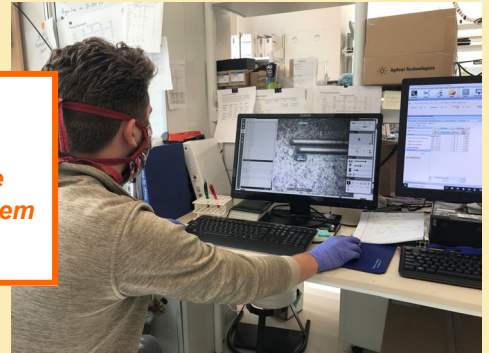
Research wise, there have been two especially exciting developments for the EG/G facilities: 1) I was able to move my lab into an awesome, larger space that previously housed **Ron Lewis's** lab (thanks again, Ron!). 2) The Experimental Petrology high-temperature and pressure equipment is officially up and running! **Matthew DeCesare**, shared lab manager, was integral first in moving my entire lab amidst a worsening pandemic, in tracking down obscure parts and machinists, fabricating the ExPet system, and helping me produce materials necessary for student training. My first ExPet project is a systematic calibration of the behavior of non-traditional isotope systems (e.g., Fe, Cu) as igneous systems cool and rocks are altered by fluids. This effort will greatly improve our ability to interpret data obtained from natural samples.

On the teaching front: sadly, we had to cancel Field Camp this year due to the pandemic. **Brennan van Alderwerelt**, **Chuck Savrda**, and I had many meetings with our students and each other before making the difficult decision. Currently, Brennan, **David Brink-Roby**, and I are planning cautiously for another unusual summer. Whatever happens in terms how we can run the course, I'm looking forward to working with our students in this capstone experience.

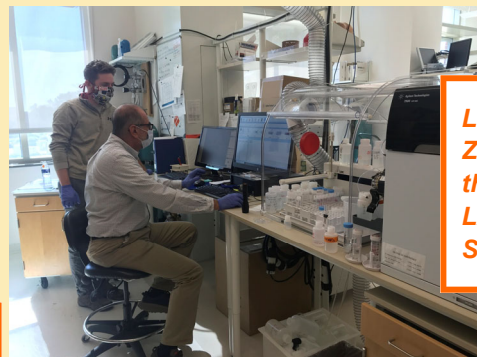
One upside to being grounded in Auburn this summer is that **Zeki Billor** and I were able to spend lots of quality time using the laser ablation ICP-MS system in CASIC. In addition to my students who are working on sulfide and oxide minerals, students in Fisheries are using the LA-ICP-MS to analyze the geochemistry of fish ear bones.

Last but not least, I would like to announce a Geosciences-sponsored **Tiger Giving Day Project** focused on **improving Diversity, Equity, and Inclusion** in our graduate program. With a fundraising goal of \$8000, we will pilot a recruitment program to target prospective graduate students from underrepresented backgrounds. The funds will go toward covering expenses such as departmental visits, application fees, and moving costs in an attempt to minimize any financial barriers for students to consider and join our program. **Please consider giving whatever you can on February 24, 2021 to support DEI efforts in the department!**

Lucas tuning the laser system



Lucas and Zeki using the LAICPMS System



New Furnaces



Dr. Bilenker's Lab Group Meetings during the pandemic

EGG Lab Group Meeting



Thanks



SEG



THE GEOLOGICAL
SOCIETY OF AMERICA

- Society of Economic Geologists and Geological Society of America for funding
- Dr. Hames for EMPA analysis and thoughtful discussion
- Dr. Thomas Hudgins and student David Giovannetti-Nazario for preliminary field work and sample collection
- Carly Glidewell for help with EMPA sample preparation in S
- Economic Geology/Geochemistry lab group for constructive criticism and discussion

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Chuck Asks the first question at Marisa's proposal

Continuing Faculty Members

Karen McNeal

Lab Updates

I am in my fifth year here at Auburn University. I direct the Geoscience Education and Geocognition Research Lab which consists of one post-doctoral scholar, five graduate students (1 MS and 4 PhD), and a newly appointed undergraduate apprentice from geology. My group had eight peer-reviewed papers and three book chapters published in 2020. One of these was published in *CBE-Life Sciences Education* which highlighted a whole group effort from my lab where we measured engagement of students in traditionally taught and active learning introductory biology courses using skin sensors. I also co-published book chapters with two of my current ESS PhD students, one with Stephanie Courtney and two with Eli Johnson.

Additionally, recently graduated ESS PhD student Nick Soltis' work on measuring student engagement during the use of an augmented reality sandbox was published in the *Journal of Geography in Higher Education*. His work in understanding student conceptions of biogeochemical cycles and earth systems was also recently accepted in the *Journal of Geoscience Education*. Nick, our Depts.' first ESS PhD graduate, started a Tenure-track Assistant Professor position at the University of Indianapolis this fall. We wish him great success in his future career. Dr. Lindsay Maudlin, post-doctoral scholar in my lab, also published a paper in *Weather, Climate and Society* about her work evaluating a decision support system for foresters that need to know how climate will affect their future planting and how to best plan for these market changes.

As far as grant efforts, this year we hired Mrs. Katie Brown to be the project coordinator of the \$3M NSF NRT award, which will train 85 graduate students at Auburn in the area of climate resilience. She has been a wonderful addition to the project, the department and COSAM overall. We are very grateful she has joined our team! We are also continuing to work on a series of three funded research projects with the Southeast Climate Adaptation Science Center (SECASC), which focus on co-produced actionable science research in the region. I am also the project evaluator for the recently funded NSF REU project led by COSAM Assistant Dean, Dr. Kim Mulligan.



This year, I have received Promotion to Full Professor and I am very thankful to have found Auburn University as my professional home. It is a special place! I also accepted the duties as Assistant Dept. Chair in Geology and have enjoyed being able to support the department in a number of service roles (e.g., dept. curriculum committee and assessment, college and university committee representation, hiring committees, advisory committee to dept. chair, chair of a variety of task forces, etc.).

I would be remiss not to state how difficult and strange our times have been, but from my perspective the Auburn administration is handling it to the best of their abilities, the geoscience faculty have stepped up to the plate, and our students are committed to their studies despite the havoc they have endured. I guide my lab group to keep making forward progress every day, one foot in front of the other, and they have done so, even when it was hard. I am so very proud of them! I am also very proud of my students for supporting each other, engaging with the department, college and the larger Auburn community on diversity and inclusion issues, being leaders within and outside the dept., and working together to make Auburn the best place it can be. I could not ask for a better group of people to work with!



Karen, Steph, and Haven presented at the poster and tools session at SECACS Regional Science Symposium.

Continuing Faculty Members

David King

Professor of Geology

During the past year, I continued research with funding from the following sources: Southern Company for stratigraphic research in Alabama, ACS-PRF funding for a project with Haibo Zou on detrital zircons in Cretaceous strata of Arkansas, internal funding from the Vice President's office for a joint project with Vinamra Agrawal on iSALE modeling of impact craters, funding from NASA EPSCoR that involves me in a project with Toshi Hirabayashi (lead PI), and funding from the Electric Power Research Institute (deep disposal sites in the southeastern U.S.).

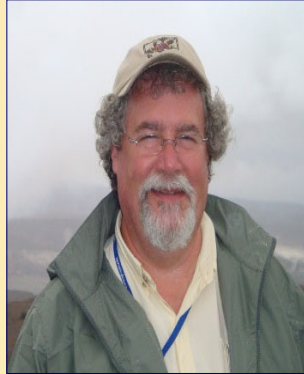
My present graduate students include Leticia de Marchi and Pedro Montalvo (Ph.D. candidates working on impact craters, both of whom are co-supervised by me). Dr. Vinamra Agrawal (Aerospace Engineering) is co-supervisor for Ms. De Marchi and Dr. Toshi Hirabayashi (Aerospace Engineering) is co-supervisor for Mr. Montalvo. Also, for the Masters in geology, I am co-supervising the following students: Sara Lowery and Lauren Talkington (co-supervised with Dr. Hirabayashi; working on impact-crater related projects on Mercury and the Moon, respectively); and Nora Lopez Rivera (co-supervised by Dr. Ashraf Uddin and working on carbon sequestration potential and related sedimentology of the Tuscaloosa Group in southern Alabama). Mr. Sandor Ricketts, my graduate student from Belize, finished his M.S. research on the Red Bank group of northern Belize this summer and is now a lab instructor in our department.

Presently, I teach on a regular basis, several courses in our department including Earth and Life through Time, Lunar and Planetary Geology, Stratigraphy, and parts of two graduate courses (Facies Analysis and Sequence Stratigraphy and Cycles in Earth History). Recently, I developed a new graduate class, Impact and Planetary Geology. Lately, I have been doing a lot of teaching via Zoom and Canvas, which is okay and works a lot better than I thought it would.

As I have been for many years, I am the advisor for the student groups, Sigma Gamma Epsilon and the Auburn chapter of the American Association of Petroleum Geologists. I am the departmental coordinator for the Science Olympiad on campus each year. Recently, I returned to the Alabama Board of Licensure for Professional Geologists as the representative of academic departments of geology in our state.

I would really enjoy hearing from former students. I have the same email address as I did when email first came to Auburn – kingdat@auburn.edu. Would really like to know about your career and your recollections of Auburn geology back in the day.

Best wishes...



Stephanie Shepherd

Assistant Professor

This past year has been like no other, many projects came to standstill, the instruments in my lab are quiet, and field work plans were shelved all because of the Corona Virus. That being said, I would like to recognize a few highpoints. Since Ron Lewis retired over the summer, I had the privilege of taking on Professional Development and Senior Seminar, the series courses he developed to promote the success of students in both our undergraduate programs. These classes are great fun to teach and affords me the opportunity to get to know all our majors. I look forward to building on Dr. Lewis's curriculum in future years. In response to the pandemic I developed a writing collaboration with female faculty across several STEM disciplines. We produced a widely read Op Ed in the Proceedings of the National Academy of Sciences (<https://doi.org/10.1073/pnas.2010636117>) that discusses how the pandemic is exacerbating existing issues of gender inequity in STEM and potential solutions. Finally, I am honored to serve as the chair of our newly formed GeoFIDE taskforce. We are working with COSAM taskforce to address issues of diversity, equity, and inclusion. I believe Geosciences has an opportunity to be a leader in this effort across COSAM and the university.

On the personal side, this has been a challenging year. Our son, who was born in August of my second year at Auburn, started kindergarten online. I experience the same challenges as many working parents, supervising my child's education while also trying to teach three classes. All I can say is we survived, and I hope we never have to do that again. Despite the challenges, there are some great memories. I spent the summer taking our son on hikes in and around Auburn, occasionally slipping into professor mode and telling him how ripple marks form. We celebrated a social distanced Halloween and won best family costume (n=1). There are more than a few Scooby Doo fans in the household.



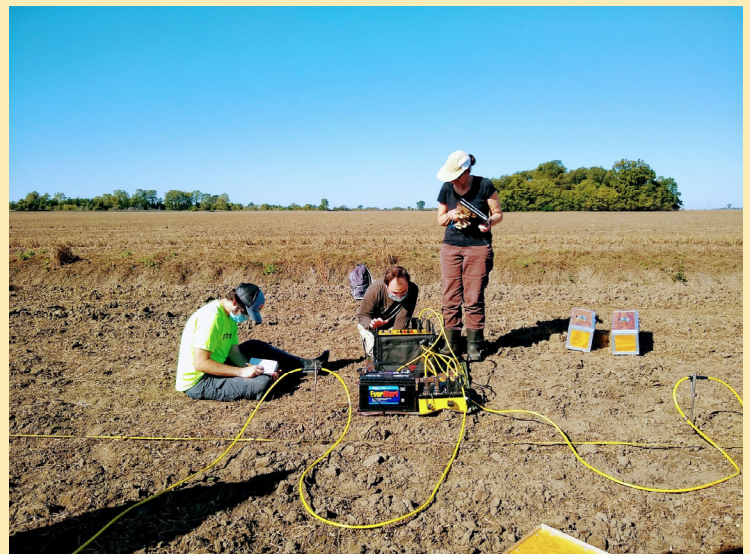
Continuing Faculty Members

Stephanie Rogers

Hello! 2020 was a busy year with lots of different research projects on the go and welcoming new graduate students. I have new lab space in the Haley Center and my lab has been coined the GeolIDEA (Geospatial Innovation, Development, and Environmental Applications) lab. Drs. Ron Lewis and Chuck Savrda (and some brave student volunteers)



were kind enough to help me clear out their old teaching lab which my students and equipment now call home. In August, I welcomed **Kaj Overturf**, **Stephen Todd**, and **Mallory Jordan** as Master's students to my lab. They have interesting multidisciplinary projects looking at the effects of environmental characteristics on honey bee colony mortality, varroa mite distribution, and studying the effects of faulty septic systems in Alabama, respectively. They are all completing the MS in Geography and obtaining GIS Certificates as well. Work has continued on an IGP grant in collaboration with **Dr. Lorraine Wolf**, MS students **Can Guven** and **Steffen Matthews** at the New Madrid Seismic zone where we are studying soil characteristics at liquefaction sites using an Unoccupied Aerial System (UAS) with a multispectral sensor attached. **Dr. Ann Ojeda**, **Dr. Matthew Waters**, and I have received another IGP grant to conduct research on contaminants in the Choccolocco Creek in AL. Fieldwork for this project commences in summer 2021 with MS students Mallory Jordan and **Ella Larson**.



Lauren Dickerson

Student Worker

I joined Geosciences as a student worker in January 2019, mostly in the offices but also spending one semester as an undergraduate teaching assistant. I grew up in Farragut, TN. I am set to graduate from Auburn in May 2021 with a degree in geography.

Outside of work and school, I am the vice president of the GSO for 2020-2021, and spend spare time horseback riding, completing jigsaw puzzles, and, recently, cooking. I love to travel with my family also, and have been fortunate enough with my father's career to have many opportunities to go abroad and see in person some of the places that I've learned about in the classroom.

I have loved my time in Geosciences as both staff and student, and am incredibly grateful for the many opportunities the department has given me over the past few years. The community and atmosphere have truly given me a grand experience.



Scheduling and classroom selections inherited a new challenge with having to consider modalities and capacity limitations for social distances. But everyone has come together to make it as painless as possible.

With the pandemic affecting every part of our lives, it affected my side hobbies as well. I was not able to shoot for any event for most of the year. Shooting for Athletics, the Atlanta Motor Speedway or weddings were all canceled for me. My trip to Ukraine was canceled as well. So, I do not have any new pictures this time. With any luck, I will be allowed to travel again next year.

While I wasn't able to indulge in my photography, I did enroll in the Graduate Certificate in Geographic Information Systems Science in the spring and I am nearly finished. I have one required course remaining that I will take in the fall when it is offered next. In addition to taking classes, I built a new house and moved in during the pandemic. It was amazing that everything went as well as it did, but it wasn't without some complications.

While I was organizing my belongings in the house, I began to experience some discomfort in my neck, shoulder and arm. This led to me having a cervical repair and fusion on my neck. Though it may sound bad, it has been a great recovery and now my neck feels better than before!

I am excited to see what 2021 has in store for me. God Bless, stay safe, and War Eagle!!

Anthony G. (Tony) Hall

Laboratory Teaching Manager

2020...What can I say? It was a crazy, crazy, different, new world. Business was not as usual in the department this year. Many 'normals' were out the window as we continued to do business as close to normal as possible.

It was Spring Break when we got the news to convert all classes to online due to the growing pandemic, which began the first big challenge of the year. In a matter of hours, we had a plan and executed it. Everyone adapted to the new plan extremely well and with great success.

During the coronavirus pandemic, I spent most of my time still going into the office to complete ongoing projects and prepare for upcoming projects. We completed the construction for Dr. Ann Ojeda lab in the coliseum and moved Dr. Laura Bilenker's lab to a much better space in the coliseum. Then in Haley, we started and completed some modifications for Dr. Stephanie Rogers' lab in Haley 2130.

Social distancing was the new buzz word that plagued my very existence for many weeks as I developed a plan to house all the students with social distancing in mind. We did get all the new and old students a desk with safe distancing but not all without a couple of hiccups.



Tony's New Home



News from Staff Members

Ashleigh Rudd

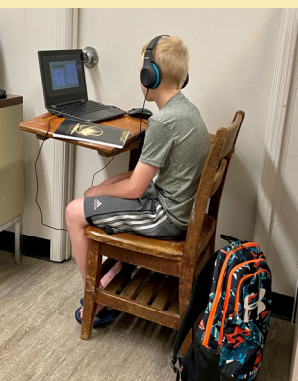
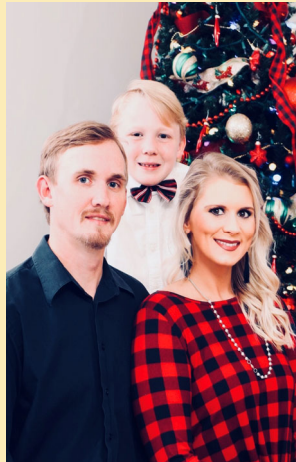
Office Manager

2020 was definitely a year like none other. I don't think any of us envisioned for our lives to change the way they did. Like many others, I experienced the same roller coaster of emotions throughout the pandemic. Adjusting to working remotely, trying to balance home life vs work life and helping my son with online learning. If you had asked me what one of the hardest part of battling a global pandemic would be, I would have never guessed it would be teaching elementary school common core math.



When we received the news that we needed to transition all classes Online, it was only a few hours before the department pulled together to make it happen. I've learned that our Department is capable of phenomenal things. I always knew that I was surrounded by a wonderful and talented group of professionals, and to see how we all leaned into this year to support each other and our students has been incredible.

I learned that you can be "together" while being apart. It is possible to maintain the community and connection we have worked so hard to develop, but it does take effort. Nothing will ever replace in-person, face-to-face interactions (or hugs!), and I continue to miss those dearly. But Zoom, Teams, Skype, FaceTime and the good old-fashioned telephone give us the ability to make sure our lines of communication are stronger than ever. adventures! Despite all of the challenges brought by



Brantley's first day of third grade ; virtual

2020, I also used this time to undergo surgery on both knees, 6 months of physical therapy, and converted my spare bedroom to my official "home office".

This past year has taught us that the adversity we face and the resilience we respond with has the power to shape our lives. With each challenge, we are given the opportunity to persevere, learn and grow into stronger, more compassionate and more grateful human beings. I look forward to a new year, new ideas and new beginnings!

Kiley Coan

Administrative Support Associate

2020 has been filled with ups and downs as we all have learned to transition to a new normal. I have enjoyed putting together the newsletter and working with the faculty and students in the Geoscience Department. We have some very bright and creative students! Even though this year has brought a lot of chaos, it has also brought people together. Our department held many exciting events while social distancing such as, croquet tournaments, line dancing, walks together, and even outdoor classes.



Personally, this year has taught me many things. I have learned to appreciate the little things in life and never take anyone for granted. We have adjusted to balancing home life with work life, adjusted to wearing a mask, altered work hours and held many zoom meetings. The hardest part of this for me was being away from loved ones. I have enjoyed spending time outside, biking, hiking, cooking with my kids, and discovering parks, in Alabama that I have never

been to before. Being outdoors is good for the soul.

I also have a new appreciation for school teachers as my two daughters transitioned to online learning in the Spring. I learned many things about my kids that I never knew before. Kaylee my youngest daughter has found a love for Art. She has painted some amazing pieces during the quarantine. My oldest daughter Kamryn, has read many books, excelled in her academics, and learned to cook wonderful meals.

My hope is that we all come out of this stronger and better than before. I appreciate all the Geoscience Department has done for me and I look forward to a more normal 2021.



Hiking at Chewacla State Park

Mark Steltenpohl

Like everyone else, the Steltenpohl family is doing their best to wade through 2020 – a year that will live in infamy...

After retiring on December 31, 2019, I was thankful to have been asked to teach my old structure course (GEOL 3400) during the spring 2020 term. It was fun being back in the classroom interacting with students again! Laura & I went up to Nashville one weekend in March to care for her aging stepmother when COVID 19 struck and caused us to remain there for 5 weeks. Fortunately I brought my laptop and all of my course materials in order to continue updating my PowerPoint presentations for the structure course. After a short, failed attempt to learn Panopto, some brilliant person - probably Tony Hall - suggested that I try Zoom, which made things much simpler for me. Combined with a courteous and very patient group of students, I feel that things went as well as they could under the circumstances. I'm also very thankful for Steffan Perritano's conscientious work as my GTA - imagine trying to develop remote structure exercises!

I actually had a good number of reports published last year thanks to my coauthors - I was a secondary contributor on each one. An amusing exception, however, is a map and report that I published with the Geological Survey of Alabama on the 7.5' Auburn Quadrangle. I mapped the metamorphic rocks on the quadrangle back in 1987 while I was working at the Alabama Geological Survey, and Lewis Dean and Charlie Copeland contributed by mapping the Coastal Plain sediments. We submitted the report just before I was hired here at Auburn in 1989, but it could not be published because when I left the Survey there were no metamorphic geologists who were qualified to field check the map. So the manuscript and map lingered in review for the next 30 years or so, and during that time both of my coauthors passed away. In 2019, the Survey rehired my former boss there, Greg Guthrie, and he resurrected the old manuscript. Thanks to his efforts we published it in 2020 with him as the secondary author.

Laura & I are enjoying writing the book *Roadside Geology of Alabama*. We've driven and written all 45 of the road transects. About half have been sent out for experts to review. The suggestions have been helpful and the comments positive! Most of the introductory material has also been written. We feel that we will make the publisher's July 31, 2021 deadline for the first draft of the book.

Laura & I are proud of our son Greg (27) for having received his MS degree from our department last Spring. Dr. Martin Medina supervised him measuring stable isotopes in a stalagmite sampled from a cave in Cuba to supplement a data set to further understand climate change in the circum-Gulf region and how it affected early humans. Greg has since moved to Louisville, Kentucky, where he's working for a geotechnical firm. His career objective is to work in the field of sustainability, a passion sparked by his mentor. Meanwhile he has joined a city sustainability initiative. His significant other, Mallory Crafton, also graduated from Auburn last Spring with her VMD. She is working at a veterinarian clinic in Jeffersonville, Indiana, just across the Ohio River from Louisville. Laura & I had a wonderful visit with them last summer which included a field trip through the fossil beds at the Falls of the Ohio (photo), famous for preserving spectacular Silurian and Devonian fossils.

Elsewhere on the family front, our daughter Natalie (28) left Premier Spirit Academy last summer to begin working for Grove Hill Academy, which is a day care. She is wonderful with children and we all feel that she has found her true calling! Granddaughter Adelynn, now 9, remains the apple of our eye. She chose to remain in remote classes this Fall term, which allows Laura and me to help her most every morning while Natalie works. All's going well so far, despite our struggles to (a) understand multiplicative comparison problems, and (b) teach how the operations relate to algebraic thinking to a very bright 4th grader who claims she hates math.



Alumni Spotlight : Dane and Rylleigh VanDervoort

~~Attention Alumni: Please let us hear from you so we can include you in the next tiger!~~
~~Geotiger! Please send your stories to Kiley Coan @rainski@auburn.edu.~~

Rylleigh VanDervoort (Harstad, M.S. Geology 2017) and Dane VanDervoort (M.S. Geology 2016). Upon graduating from Auburn, Rylleigh obtained her M.A. in Secondary Science Education from the University of Alabama and she currently teaches AP and Honors Chemistry and Earth Science at Northridge High School in the Tuscaloosa City Schools district, while Dane works as a Geologist in the Geologic Investigations Program at the Geological Survey of Alabama.

Rylleigh and Dane were wed in an intimate ceremony in late December of 2019, and they had the good fortune of sharing in the celebration with a few of the faculty, staff, and fellow alumni from the Department of Geosciences! They are currently enjoying their new home and are looking forward to welcoming the next generation of Auburn fan to their growing family in the late summer of 2021! WDE!!!



Alumni Spotlight Arvind Bhuta

Hey fellow Auburn eGeotiger readers,

I am currently with the USDA Forest Service at their headquarters in Washington DC, where I currently manage a program for several geospatial databases that supports States and non-industrial private landowners in the management of their forests across the Nation and reports those accomplishments to Forest Service leadership, the USDA, the White House, and Congress. In my six years with the Forest Service, I have also been the Ecologist for the National Forests in Alabama in Montgomery, Alabama and a Biometrician Forester at the Regional Office in Portland, OR. I have a BS in Zoology (1998) from Auburn and worked multiple field ecology internships until GIS perked my interest and with some nudging from Dr. Philip Chaney, I came back to Auburn to become a Geographer. I graduated from the Geoscience Department (back then known as the Department of Geology and Geography) with a dual degree in Geography and Environmental Science in 2003. I went on to get my MS (2006) and PhD (2011) in Geography from Virginia Tech and did a post-doctoral fellowship in Forestry at Clemson University from 2012-2014.

The undergraduate coursework and the support from faculty in the courses I took in Geography and Geology at Auburn University were critical in my success in graduate school and my career and I want to thank Drs. Philip Chaney, Luke Marzen, and Ming-Kuo Lee for their help! While I currently am "caring for the land and serving people," which I feel encapsulates what I do as a Geographer, I have been able to continue my research interests in biogeography with looking at spatial and temporal patterns of longleaf pine and other southeastern forest ecosystems through field work, tree-rings, soil carbon dating, GIS, and remote sensing through collaboration with other scientists on publications and research grants.

If undergraduate or graduate students or alumni ever need to learn more about the work I do or find out more about the Forest Service, please reach out!



Tuskegee National Forest



Department of Geosciences Advisory Board Update



This has been a year of uncertainty and challenges, but the GAB remains committed to playing an important role in the growth of the Department and its students. Much of our work this year has been provided remotely. In the Fall, we typically have conducted in person student forums and mock interviews as we seek to help students prepare for seeking employment. However, this fall we will conduct mock interviews virtually.

Board members continue their generous financial support of the Department. We are working with the Department to utilize funds normally awarded to travel and other in-person conferences to other needed areas, such as helping to provide PPE for labs.

Our fundraising efforts are still focused on the Nicholas L. Hood Endowed Memorial Scholarship. This new fund is designed "to establish a minimum \$25,000 endowment to award a \$1,000 annual scholarship to a deserving Geosciences student to ensure that Nick's passion for field studies will extend to future students in perpetuity."

The GAB continues to pursue meaningful ways to support the students and faculty and are always looking for more Geoscience Alumni who have a passion to give back. We welcome all who wish to join us in helping support the Department.

Departmental Awards by Phil Chaney

Due to the pandemic, our annual departmental awards ceremony and picnic was cancelled. However, we still would like to recognize our outstanding students and all their accomplishments in 2019-2020.

Thanks to gifts from our alums and other friends of the department, donations are used to support our students and our programs in many different ways. One way of recognizing students who distinguish themselves through their academics, research, service, and/or leadership is with scholarships or other types of awards, including plaques and cash.

Thanks to the hard work of our departmental Awards Committee (Co-Chairs Phil Chaney and David King, and committee members Chandana Mitra and Chuck Savrda), we have established very well organized nomination, application and voting mechanisms to assure that deserving students are appropriately rewarded for their efforts.

Student Awards 2019-2020

Outside of the University

IBA team for 2020 **Lucas Monroe,
Marcus Schneider,
Jamie Braun,
Nora Lopez-Rivera**

COSAM Awards

Dean's Medalist (Outstanding Senior) for Geosciences-

Carly Glidewell

Outstanding Junior in Geosciences-

Lauren Dickerson

Graduate Teaching-

Nick Soltis

Department of Geosciences Awards

The Endowed Dr. Charles E. "Chuck" Savrda Outstanding Graduate Student Award-

Connor Cain

Robert S. Fousek Award for Research in Economic

Geology

**Raeann Garcia
Lucas Monroe**

Geosciences Advisory Board Awards

GAB Outstanding Student Awardees

Geology

**Raeann Garcia,
Nick Soltis**

Geography

**Lauren Dickerson,
Megha Shrestha**

GAB Outstanding Leadership-

Geology

Connor Cain

Geography

Megha Shrestha

GAB Research Awards

Leticia De Marchi	Can Guven
Nora V. Lopez Rivera	Cisil Badur
Md Sharif Mustaque	Jamie Braun
Md Mahfujur Rahman	Marcus Schneider
Pedro E. Montalvo Jiménez	

GAB Travel Grants

Fall 2019

Md Mahfujur Rahman
Raeann Garcia
Jasmin Naher
Md Sharif Mustaque
Leah Travis-Taylor

Spring 2020

Summer Cliff
S M Shihab Nur
Jasmin Naher
Ozan Turkes

Awards and Recognitions

Ashraf Uddin Elected to the GSA Fellow and Endowed Robert B. Cook Professorship



The Geological Society of America (GSA; <https://www.geosociety.org/>) is an international scientific society formed in 1888 to serve members in academia, government, and industry around the world. The GSA Council elects Fellows to honor the best in geoscientific profession. Ashraf Uddin of the Department of Geosciences has been recently elected to the GSA Fellowship in recognition of his exceptional contributions in geoscientific research in sedimentary geology, tectonics and

contaminant groundwater hydrogeology at the Himalayan-Bengal system and their actualistic application at the Southern Appalachians. As a GSA Fellow, Uddin is encouraged to continue to engage with the GSA community, help shape the Society, and inspire the next generation of geoscientists.

Dr. Uddin was selected to hold the Endowed Robert B. Cook Professorship from 2020 to 2025. The distinguished award is designed to support superior faculty of the Department of Geosciences and represents a well-deserved honor for Dr. Uddin for his remarkable professional achievements.

In June of 2019, the newly renovated David H. Koch Hall of Fossils – Deep Time exhibit was unveiled at the NMNH. One of the most important updates to the exhibit was showing not just the dramatic changes in our planet's past but showing how these events can teach us about modern climate change. Since this is the exhibit with the dinosaur fossils, it's reasonable to assume that most of the museum's 4.5+ million annual visitors will visit Deep Time, so any of its programming could greatly impact public acceptance and passion about climate change and climate action. That is why it is important for curators, the museum's own evaluation department, and researchers to understand the impact the exhibit may have on visitors and how to maximize the educational experience. In my years at Auburn so far, I've trained under Dr. Karen McNeal to answer *just* these kinds of research questions.

My project at the Smithsonian NMNH will employ surveys, interviews, and eye-tracking technology to understand how the exhibit impacts visitors' perceptions of modern climate change and their experiences with two panels of the exhibit that compare past and current change using both story and data on graphs. This project is a perfect expansion on my M.S. thesis completed at Auburn about undergraduate perceptions of climate change graphs using eye-tracking (as well as the two climate-change-centered video games I have created). My time at the NMNH will allow me to examine the same questions in a real-world informal educational setting. With my background in traditional geology and more recent research methods training in education, I hope that I can understand both the physical and social aspects of the Earth system and their often complex interactions.

As geoscientists, we are best suited to educate and act to prevent the worst impacts of modern climate change. At the same time, we know that our field is responsible both for the greenhouse gas emissions themselves and the decades-long cover-up of climate science. Thus, we have an intellectual and ethical duty to integrate climate change into our Earth stories whenever possible, which I think the new Smithsonian NMNH Deep Time exhibit exemplifies. Further, this project is the opportunity I have been dreaming of since 2011 when I declared my undergraduate geology major and started my first summer job in informal science education. I am very excited to bring the knowledge and skills I have grown at Auburn University to Washington, D.C., as soon as I can do so safely.



Steph Courtney Receives Award to Conduct Research at the Smithsonian

"In April of 2018, during my first year as an Auburn Geosciences graduate student, Elijah Johnson and I were thrilled and grateful to become our department's first ever National Science Foundation Graduate Research Fellows (NSF GRFP – we now have a

third, Akilah Alwan). One of the many perks of the GRFP is the additional opportunities for funded internships with other federal agencies to further grow our development as researchers. Last year, I applied and was granted additional funding through the Graduate Research Internship Program (GRIP) to conduct research at the Smithsonian National Museum of Natural History (NMNH). Unfortunately, my acceptance came only 2 weeks before the COVID-19 pandemic hit in the U.S., so my research internship has been delayed so far. However, I'm hopeful that the situation will improve in time to complete the internship during the summer of 2021 (stay tuned).

Awards and Recognitions

Ashleigh Rudd

Spirit of Excellence Award

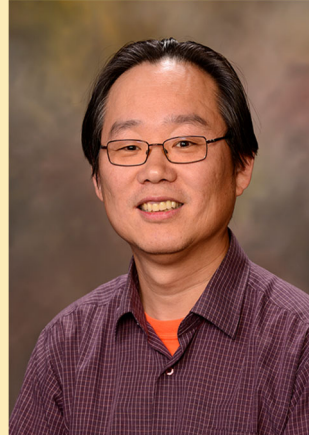


Each month, Auburn University recognizes as many as four special employees that goes “beyond the call of duty” to improve service, quality, and the departments image. These employees exemplify professionalism and dedication to excellent service by putting forth extra effort, perform “outstanding contributions of significance, achieve specific or sustained accomplishments that exceed normal expectations. Thank you Ashleigh for

all the hard work you put into making the Department of Geoscience excellent! Your work and dedication are valued and appreciated by all.

Haibo Zou

Elected Treasurer of Geochemical Society



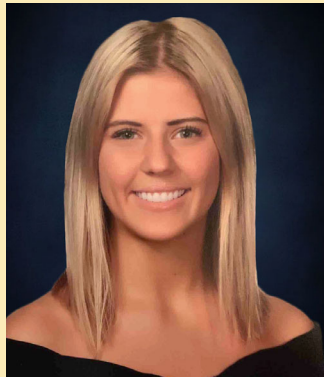
“I am excited to serve as a treasurer and board director to get more involved with the society,” explained Dr. Zou. “Earth Sciences has three major fields: geology, geophysics and geochemistry. Geochemistry is the marriage of geology and chemistry for better understanding how the Earth evolves and works. The Geochemical Society is the international society for geochemists and connects its

more than 4,000 members through excellent conferences, publications, award programs, student programs, and more.”

This is the first time he has been serving for the Geochemical Society.

“I consider myself as both a geologist and geochemist,” he added. “I have been serving as a Fellow (since 2011) and Associate Editor (since 2016) for the Geological Society of America. I hope this service as a treasurer for the Geochemical Society will raise the visibility of Auburn Department of Geosciences.”

Founded in 1955, this society encourages “the application of geochemistry to improving our understanding of the Earth and solar system” throughout its network of members.



Carly Glidewell

Dean's Medal: Geosciences
Graduated in May with her Bachelor of Science in Geology. Her freshman year, she was awarded the Spirit of Auburn Founders Scholarship and joined the Pi Beta Phi Sorority on campus. During her time at Auburn, she has served as an Undergraduate Teaching Assistant for two introductory Geology classes

and secretary for the National Society of Collegiate Scholars (NSCS). She also spent time volunteering at local Boys & Girls Clubs, mentoring Auburn and Opelika youth.



Lauren Dickerson

Outstanding Junior

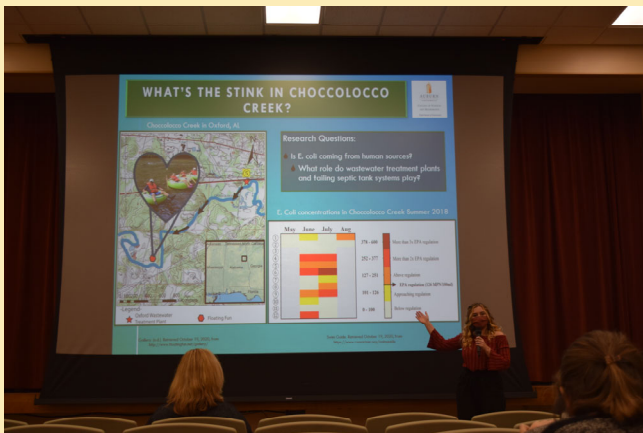


She is from Farragut, Tennessee, and has been part of the Auburn family her whole life. Since declaring her degree in geography, she has had the opportunity not only to be a student worker, but also to work for professors as an undergraduate TA and an undergraduate research assistant. She is part of the Honors College and is planning to take a leadership position for the Geography Student Organization. She is also part of the Gamma Theta Upsilon Honor Society.

Awards and Recognitions

Eleanore Larson, Graduate Student Runner Up and People's Choice Award

"Auburn's 3 Minute Thesis Competition was a great experience. I gained valuable skills in science communication, brevity, and managing nerves. This competition was a great way to practice my spiel for when anyone asks about my research. I really enjoyed watching the other presentations and learning about innovative research happening across disciplines at Auburn. I am thankful to have had the support of the Geosciences department, who showed up to cheer me on. I think the 3 Minute Thesis Competition is a great opportunity for any graduate student interested in honing their presentation skills."



Stephanie Shepherd, Assistant Professor 2020 Inclusive Excellence in STEM Faculty Award

The COSAM Office of Inclusion, Equity and Diversity (OIED) has awarded the 2020 Inclusive Excellence in STEM Faculty award to Dr. Stephanie L. Shepherd.

This award, first given in 2019, is intended to recognize distinguished and exceptional faculty, staff, and students who have shown exemplary efforts to promote inclusion and diversity. The OIED annually recognizes both a faculty or staff member and a student who have demonstrated tremendous leadership in advancing Auburn University's mission to build a more diverse and inclusive climate within COSAM. Importantly, each winner of the Inclusive Excellence in STEM award is also granted up to \$250 of financial assistance by the OIED to sponsor an event or program designed to continue the award winner's work in diversity, equity and inclusion within the college.

Furthermore, 2020 Faculty winner Dr. Stephanie L. Shepherd has begun planning her event. Specifically, she will screen *Picture a Scientist*, a documentary highlighting the inclusion of and discrimination against scientists who are women. Following the screening, she will host a panel discussion focusing on the inclusion of women in the STEM fields.



Akilah Alwa, Graduate Student

named the Diversity and Inclusion Fellow as part of the 2020 University Corporation for Atmospheric Research (UCAR) Next Generation Fellowship Program. This Fellowship will provide an excellent opportunity for Akilah to promote diversity, equity, and inclusion initiatives in the broad Earth system science community.

Please see <https://news.ucar.edu/.../ucar-announces-2020-next...> for more details.



Awards and Recognitions

Pedro Montalvo, Doctoral Student

Recipient of a Virtual Student Travel Grant for 2020 American Geophysical Union (AGU) Conference

Funding from the AGU grant helps students with educational expenses.

"I am presenting part of my Ph.D. research dissertation titled 'Spatial Distribution of Water Ice Thickness Implied by Regolith Mixing in Permanently Shaded Regions in the Lunar South Pole' as a poster in this virtual conference," Montalvo said.



At the University of Puerto Rico, Montalvo earned both his Master of Science in Geology and his Bachelor of Science in Geology.

"I have published one first-author peer-reviewed article and have two co-authored peer-reviewed articles, in addition to multiple conference abstracts from different conferences including the Geological Society of America and Lunar, Planetary Science Conference and the Meteoritical Society," he added.

His research interests include both meteorite impacts and planetary geology.

Montalvo's advisors are Masatoshi Hirabayashi in the Samuel Ginn College of Engineering and adjunct in the Department of Geosciences, and David King in the Department of Geosciences.

"I am very proud of Mr. Montalvo's accomplishment; he is the first person in our department to ever earn this honor," said David King.

Masatoshi Hirabayashi shares his insight about how this conference inspires Montalvo to make an impact.

"The AGU meeting is the largest conference in geosciences in the world, and there are many scientifically critical discussions taken place. I am believing that this award not only encourages Pedro to join exciting sessions but also motivates students and early career scientists to be part of discussions about ongoing cutting-edge innovations in the geoscience field," said Hirabayashi.

By: Maria Gebhardt

11/17/2020

Nick Soltis First Ph.D.

in Earth System Science and Award Outstanding GTA

Soltis began his Ph.D. with Karen McNeal at North Carolina State University just a few years ago. When McNeal took a position at Auburn, Soltis made the decision to follow in suit, and transferred his work to The Plains.

The Ph.D. program allows for flexibility and a great deal of interdisciplinary work. While Soltis specialized in geosciences, other students chose concentrations such as forestry, engineering, agriculture, and social sciences. The PhD curriculum includes three required courses – one on Earth system science and global change, another on observation and analysis of the Earth system, and lastly, a seminar. The remaining credits are flexible, Soltis said, completing majority of his in geology, but also taking classes in education, educational research methods, psychology, and forestry.

On top of coursework, teaching and research are a vital part of pursuing a graduate degree. Soltis taught a variety of labs and field courses as a teaching assistant at Auburn, and even had the opportunity to lead a 75-person lecture. He also serves as instructor of record for Auburn's online Dynamic Earth Class. On top of teaching, Soltis focused the bulk of his research on blending the field of Earth system science, biogeochemistry, and education in order to pinpoint how students understand and how instructors teach complex Earth systems curriculum.

He recently defended his dissertation on characterizing and assessing teaching practices related to systems thinking skills in undergraduate geoscience courses, as well as understanding how students may best develop these skills. His dissertation involved analyzing survey data on teaching practices, conducting a qualitative study exploring how students conceptualize complex Earth systems, and examining the development of a research-grade instrument to measure systems thinking in Earth sciences and psychometrics, Soltis said.

On top of all this, Soltis serves in any way he can to help make the geosciences department more diverse. During his time in the program, Soltis worked on a project with colleagues at the University of Texas, Austin and the GeoFORCE program. The program seeks to expose high school students to the geosciences through free summer academies, allowing them to visit field sites all over the country. Soltis served the program specifically by conducting research on its effectiveness and by teaching a field course in Oregon.

Soltis thanks the university, and COSAM specifically, for the incredible faculty he has interacted with and learned from, and for the amazing opportunities provided to him, such as study abroad trips to the Bahamas and Iceland.

By: Melanie Vynalek



Faculty/Staff Christmas Party 2020



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A MINOR IN GEOGRAPHY

Geography studies the connections among people, places, and environments. Our geography minor gives students a sound foundation in geography as a research-oriented and policy-related field of study. The minor also offers students the opportunity to acquire a variety of techniques and skills necessary to understand the spatial dimension of human changes in the physical earth, and to identify and analyze urban problems.

Geography as a discipline prepares students for a wide variety of employment opportunities in the public and private sectors, including careers in the fields of planning, transportation, real estate development, publishing, marketing, and resource management.

MINOR REQUIREMENTS

Required Courses (6 hour total):

GEOG 1010 Global Geography
GEOG 2010 Human Geography
GEOG 2020 Physical Geography

MINOR REQUIREMENTS CONT.

Elective Courses (9 hours total):

GEOG 3000 Sports Geography
GEOG 3110 United States and Canada
GEOG 3103 Alabama and the Southeast
GEOG 3130 Latin America
GEOG 3140 Africa
GEOG 3300 International Travel and Tourism
GEOG 3810 Cartography and Graphics
GEOG 5010 Urban Geography and Sustainability
GEOG 5210 Climatology
GEOG 5220 Geomorphology
GEOG 5350 Economic Geography
GEOG 5380 Political Geography
GEOG 5400 Geography of Natural Hazards
GEOG 5510 Human-Environment Interaction
GEOG 5550 Geography of Water Resources
GEOG 5820 Ariel Photography and Remote Sensing
GEOG 5830 Geographic Information Systems

Students must earn a "C" or better in all minor courses

Invest in the Geosciences at Auburn!

State funds and tuition pay only a small part of the costs to recruit and retain the best faculty and graduate students and support the undergraduate programs that are the hallmarks of the Auburn experience. Private funds sustain and enhance these extraordinary opportunities for students and faculty. The Department of Geosciences continues to provide the best possible education for our undergraduate and graduate students. Each year, private support provides the funding that helps support Auburn's margin of excellence. With our new Ph.D. program in Earth System Science, private giving is now more critical than ever. Please make your gift today via our secure website:

<http://www.auburn.edu/cosam/departments/geosciences/Giving%20to%20the%20Department/index.htm>

We continue to welcome your gifts to any fund in the Department of Geosciences, and we hope you will consider any of the following funding priorities:

Geosciences Department: This unrestricted account provides the Chair with the most flexibility to apply support to the Department's most immediate needs, such as student and faculty travel, research, and equipment.

Geosciences Advisory Board: Our Advisory Board includes alumni, corporate, governmental, and community members who help support students, faculty, and staff in our department. The Board serves as a liaison with the geoscience business community and government entities to promote the interests of our department within Auburn University, the state, and beyond. The Board helps in our recruiting and retaining the most talented, motivated, and competent students and faculty by providing scholarships, grants-in-aids for research, CO-OPs, and internships, as well as support for our departmental seminar series and the GeoClub.

Geology Alumni Endowed Scholarship: Provides scholarships for deserving undergraduate students in geology.

Nick Hood Memorial Scholarship: The Nicholas L. Hood Endowed Memorial Scholarship was established by family, friends and classmates in memory of Nicholas L. Hood for the purpose of providing scholarships for students in the College of Sciences and Mathematics with a declared major in Geology.

For questions about creating scholarships and professorships, stock or estate gifts, specific programs, and suggestions on how you can support the Department of Geosciences, please contact COSAM development at the address below:

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