



ALUMNI, STUDENTS AND FRIENDS:

Here we are at the end of another spring semester. How does the time pass so quickly? Many changes this year for the department and we are all still adjusting. We were saddened by the passing of Dr. Mark Schorr at the start of the fall 2022 semester. A member of the department since 1994, Dr. Schorr's teaching and research are legendary. Students flocked to his ichthyology and limnology classes. His legacy will continue through the Dr. Mark Schorr Memorial Fund for Graduate Students which will support graduate student research and travel. In addition, the UTC Library has agreed to archive his research papers which means that you will be able to access his work through the Special Collections in the future. The fall semester also brought more than 50 department curriculum proposals. The majority will result in an update to the geology program to improve recruitment and retention. We have also added postbaccalaureate certificates in climate science and environmental science. If you are in the Chattanooga area, consider returning to expand and update your skills through these two new certificates.

Dr. Jon Mies is retiring on August 1, 2023, after 30 years of service at UTC. He has taught physical geology and petrology to a generation of students. We are in the process of a search for an assistant professor, but Dr. Mies is irreplaceable, and the new hire will certainly have big boots to fill. We have other searches in progress for a geology lab teaching specialist and a visiting biology lecturer.

As department head, I am grateful to collaborate with the 39 faculty and staff in support of student success. We currently have more than 700 undergraduate students distributed across all three disciplines and 32 students in the graduate program. Our faculty are outstanding teachers and scholars, conduct research around the world and present results to international audiences. Thank you for supporting our programs through mentorship, outreach and your donations (which receive a handwritten thank you note with a departmental sticker!). We would like to keep in touch with all of you, so please update your information using our [online alumni information form](#). Also, we are very active on social media, so please consider following us on whatever platform you prefer.

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CONNECT WITH US

Here in the Biology, Geology and Environmental Science department, we love staying connected with our alumni and students. You can now find us on various social media channels, including Facebook, Instagram, and Twitter. We love hearing from our followers and hope you will share news and questions with us.

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NEW FACULTY HIGHLIGHTS



Jannatul Ferdoush
Geneticist

Dr. Ferdoush joined our department as an assistant professor of genetics in fall 2022. She is a molecular biologist who received her Ph.D. in molecular biology, microbiology and biochemistry (MBMB) from the School of Medicine of Southern Illinois University at Carbondale. She teaches classes in genetics, virology, introductory biology and genetics lab. In her teaching she emphasizes the real-life applications of genetic concepts and offers hands-on activities to engage students in learning. She has also updated the syllabi of many of these courses by incorporating her up-to-date materials.

Dr. Ferdoush likes to help students become successful in their studies and is active in research. She has published eight articles in peer-reviewed journals in her field. Her research is focused on understanding the regulation of eukaryotic gene expression and transcription-coupled ubiquitination. The knowledge from these studies would provide new avenues for disease detection and treatment strategies. Dr. Ferdoush's research includes student research assistants. Three undergraduate students are currently working in her lab.

Dr. Ferdoush is also currently refurbishing the molecular biology lab by buying new instruments, chemicals and reagents. She is interested in collaborative research and is working on a few projects in collaboration with other researchers. Dr. Ferdoush enjoys her interaction with students and colleagues in the classroom and in research projects. In her spare time, she loves to spend time with her family. She also likes watching movies, shopping and going out to enjoy the natural beauty of Chattanooga.



Tahmina Shirmeen
Geology Lecturer

Tahmina Shirmeen is a hydrogeologist who joins BGE as a geology lecturer. Before joining as a full-time faculty member at UTC, she received her MS in geology and MS in computational hydroscience and engineering from the University of Mississippi. She had been actively involved teaching at various

institutions including UTC and Chattanooga State Community College since 2017, where she taught several lecture and laboratory geology courses. Her research interest includes numerical modeling of rainfall runoff in urban watersheds, environmental and climate change studies using numerical modeling, GIS and remote sensing. As a geology lecturer in BGE, Shirmeen is willing to support and promote a more diverse and inclusive curriculum in the department and across the UTC campus. Her goal is to enhance student learning in all disciplines at BGE through mentoring students or helping students in their research projects. She is currently teaching GEOL 1025 Geology of the National Parks, oceanography and physical geology.



Katherine Ludwig
*Visiting Geology Lab
Teaching Specialist*

Katherine Ludwig received her BA in geology from Augustana College, in Illinois, and her MS in geology from the University of Missouri - Columbia. At UTC, she is a visiting geology lab teaching specialist, where she teaches physical geology lab and oceanography lab.

She has been teaching for two and a half years, starting as a teaching assistant at the University of Missouri, where she taught labs for an introductory geology course. She first taught in 2020 when the pandemic was at its height, and as a result has experience teaching both in-person and in hybrid formats (a mix of online and face-to-face teaching).

During her first semester teaching, she and the other Missouri TAs had to come up with methods to adapt to the evolving pandemic situation, where the goal was to keep everyone safe but make sure that they were still able to learn. Some of the strategies they employed included halving the size of classes, providing lecture recordings and materials on Canvas and having assignments turned in online.

Since coming to UTC, she has worked to use her earlier experiences as a TA to develop her teaching strategy as a lecturer. For example, she makes lecture materials available online so that her students may access them later and use them to study. She also tries to include material in her classes that is interesting to all of her students (including those who are not passionate about the subject).



Mary Feely
*Visiting Biology
Lecturer*

This semester, Mary Feely found success using props to explain lessons in her classes, where she frequently uses methods such as videos and drawing on the board or on the screen to illustrate topics such as DNA replication, meiosis, genetic drift and more. When students visit her office, she uses different "props," such as candy bars, to illustrate chromosomes during meiosis or a ribosomal complex forming during translation. She found that this kind of silly approach engaged her students far better than drawing it or explaining it without the use of visual aids. She has observed that students' grades improved throughout the semester when she used these tactics. She also noticed that students were more likely to return for more help via her office hours using these teaching techniques. She will definitely continue to bring more "props" to the classroom to help with her teaching.

TEACHING HIGHLIGHTS



Katherine Kinnear
*UT Alumni
Association Award*

Katherine Kinnear, senior lecturer and A&P lab coordinator has been selected for the UT Alumni Association Award. She received this distinction for experiential learning in her BIOL 4335 Wildlife Education and Rehabilitation course. This course focuses on the field of wildlife rehabilitation, with emphasis on the natural histories of native wildlife and human dimensions of wildlife conservation. In addition, she has given talks to several community and educational groups in the Chattanooga area about living harmoniously with wildlife and finding humane resolutions to wildlife conflicts. She also works with Wildlife Society Liaison for the department's Wildlife and Zoology Club and UTC Pre-Vet Club. Other classes she teaches include Human Physiology (BIOL 2080/L) and Functional Human Anatomy (BIOL 2060/L).

FACULTY NEWS



DR. JONATHAN MIES, Robert Lake Wilson professor of geology and long-time faculty member of BGE, announced that he will retire at the end of this semester.

Dr. Mies joined the department in 1993 and has been actively involved in many aspects of the department including teaching, research, advising/mentoring students and service to the department, college, University, community and profession. He also took students to field trips in different parts of the United States and abroad.

During his tenure at UTC, Dr. Mies taught many courses in geology including structural geology, mineralogy, petrology, field methods in structural geology, X-ray diffraction methods, hydrology, geology field experience, dynamic earth, physical geology, research design and senior research projects. Throughout his time at UTC, Dr. Mies also received many awards including the Robert Lake Wilson Professor of Geology, Dr. John R. Freeman award for excellence in teaching and advising and many more. He will be truly missed by his students and colleagues at UTC!



In December 2022, students taking ant ecology, animal physiology and meiofaunal biodiversity experienced what a research symposium is like. Students presented the results of their groups projects (more than 30 posters) in a symposium organized by **DRS. DEANNA BEASELY, LOREN HAYES, and FRANCESCA LEASI**. 3-D printed awards (a capybara, a tardigrade or an ant) were given to the first, second and third ranking posters in each class. Congratulations to these wonderful students! Look for growth of this symposium in the future.

STUDENT PROFILES



RACHEL ROSE is a current environmental science graduate student working to complete her degree using the internship option. She graduated from Maryville College in 2016 with a BS in biology. After thinking about her next direction in life, she decided to pursue the MS in ESC degree here at UTC, starting the program in Fall of 2021. Her career goals are to work for either a local or federal government agency or a non-profit company that has a focus on bettering the environment, integrating both environmental and human health and serving the public.

Rachel has selected the "Internship" option to complete her MS in ESC degree. To do so she obtained an internship with the Tennessee Department of Environment and Conservation (TDEC) at the Chattanooga field office starting in May 2022. Thus far, she feels she has gained valuable and very relevant experience that will greatly benefit her career. Specifically, she has been able to network with local government agencies and departments that focus on environmental well-being and service to the public.

Through this internship, she has gained hands-on experience related to a variety of permits, sampling techniques and inspections that are performed and managed under the Division of Water Resources within TDEC. Examples of the permitting and inspection processes she has studied include mining, drinking water, wastewater, groundwater inspections and the collection of chemical, bacteriological and benthic macroinvertebrate samples in streams.

As a part of the required internship option, Rachael's work exemplifies the hard work necessary to obtain a future job in the environmental sciences.



This past summer, BGE undergraduates **CARTER JORDAN** (pictured left) and **GIANNI RASNICK** (right) travelled with Dr. Hope Klug to Finland to study the mating dynamics of a small marine fish, the sand goby, who lives in the Baltic Sea.

For the sand goby, the dads are the ones that provide parental care, and the females just mate and leave. Male sand gobies compete for nesting sites and then they compete to attract female mates. Female sand gobies are pretty picky about who they mate with and will base their mating decisions on a male's nest and his likelihood of being a good dad.

In their study, Gianni, Carter and Dr. Klug collaborated with Dr. Topi Lehtonen of the University of Oulu to explore the effects of nest competition on mating behavior and asked specifically what happens if loser males—that is, those males who initially lose in next competition—are allowed to become winners and are given a nest.

Dr. Klug says that the research was "particularly exciting because it allowed our UTC undergraduates to travel and conduct research internationally" and that "it was wonderful to have Gianni and Carter as part of this research team."



Two UTC Environmental Science graduate students, **THOMAS WIEGLAND** (pictured top) and **CHYANNE SMITH** (pictured bottom), were awarded National Science Foundation Graduate Student Research Fellowship awards. These highly prestigious awards afford students the time and financial support to pursue graduate research. Chyanne's research focuses on environmental factors influencing the social living of the degu, a social rodent found in Chile. Thomas' research focuses on the ability of rare plant species to acclimate to environmental change. Congratulations to Chyanne and Thomas for this impressive achievement.

ALUMNI UPDATES



Twin brothers, doctors **JERMAINE AND JEREMY HOGSTROM** (pictured left to right) graduated from UTC in 2014 with degrees in biology.

From their first days at UTC their focus had been to go to medical school. After graduation, they were not successful in gaining admittance to a program the first time they applied. After that, they used their time off from school productively, working in the lab at CHI Memorial assisting with phlebotomy. Eventually, using the perseverance that they were noted for as undergraduate students, they both gained admittance to the Edward Via College of Osteopathic Medicine at Auburn University.

After graduating from Auburn, they furthered their medical training via a three-year residency for Internal medicine in Detroit with Authority Health GME Consortium. Both brothers are now working in primary medicine in Chattanooga. Jeremy and Jermaine are known on social media as the @Twin.Doctors. They hope to continue this same work in primary medicine for many years to come. Advice they offer to current students is to "set the goals that you want to achieve, but also make sure to have realistic expectations. Persistence is key. Always think and plan ahead."



ABBIE FAXON graduated in 2022 from the BGE department with a BS in geology. Her minor was in geographic information systems (GIS).

Her senior year, she was awarded the Outstanding Senior award. As a UTC Honors College student, she conducted an honors thesis under the supervision of Dr. Azad Hossain, with Prof. Tahmina Shirmeen and Dr. Jon Mies on her committee. Her honors research project was on remote sensing of water quality in South Chickamauga Creek in Chattanooga. She presented her research at different local and national conferences and symposiums including the American Society of Photogrammetry and Remote Sensing (ASPRS) and the National Council of Undergraduate Research.

Immediately after her graduation, Abbie went to work in Oak Ridge National Lab's (ORNL) Geospatial Science and Human Security Division. In this role, she is working to test and develop software for use by agencies like the Federal Emergency Management Agency (FEMA). Some of the work she does includes debris estimation, building damage assessment, water detection, image correction and testing algorithms for output accuracy.

OUR STUDENTS NEED YOUR SUPPORT

One of the greatest joys of educators is hearing back from our past students. We are also interested in your path after graduation and look forward to hearing about your new endeavors. If you have experienced a life-changing event (e.g., gotten married, had a baby, etc.), or obtained a long-sought "best job ever", please let us know. We will share your news with fellow alumni and friends via future newsletters. [You can visit our website and fill out the Alumni Update form here.](#)

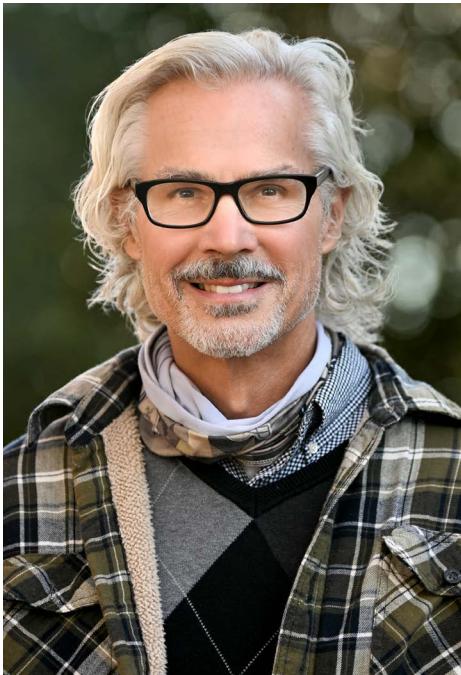
We greatly appreciate the support that you, our alumni and friends, have given us in the past and would appreciate any new support you might be able to give this year as increasing costs reduce the purchasing power of our departmental budget. Gifts to the department may be addressed to one of three funds. The first is our traditional gift fund, which is used to fill holes in our budget. To make a gift to this fund please earmark your donation to the "BIOL/ESC Gift Fund/GEOL Gift Fund."

A new type of gift fund we are initiating this year is designed to provide yearly support to our faculty for the implementation of new teaching initiatives throughout our curriculum. Such initiatives will include both new instrumentation and new teaching methods that will involve active-learning opportunities for our students. As a department that includes fields that are increasingly defined by new technologies and new types of data, we must strive to keep our teaching relevant, so that our graduates will remain competitive with their peers. To initiate this new fund, we have obtained substantial financial support from BGE faculty. Please help us build this new fund so that it will become an endowed fund. To do this, you may earmark your donation to be for the "BGE Teaching Enhancement Fund". We hope the endowed fund will be available to help improve our teaching sometime in the next five years.

The third gift fund we ask you to consider is one we have set up to help us remember our dear friend, colleague, and teacher, Dr. Mark Schorr. To donate to this fund please direct your gift to the "Dr. Mark Schorr Memorial Fund for Graduate Students" endowed fund to support graduate student research, travel, scholarships or the greatest needs of the graduate students.

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IN MEMORIAM



We are very sorry to report that the BGE department lost one of its long-time faculty members Dr. Mark Schorr just before the start of fall semester 2022.

Dr. Schorr played a critical role in the development of the department over the past three decades. He was one of the founding faculty members responsible for the master's in environmental science program. His involvement with student research, especially graduate research, was phenomenal.

In addition to serving as the director of the MS in ESC program for a few years, Dr. Schorr served as major professor for more than 25 graduate students. With research interests in stream fish ecology, he educated many MS in ESC graduates in this field. As such, he and his students, through their publications, have provided data on the health of southeastern



Tennessee streams that has helped establish baseline data for many streams that did not exist previously.

Dr. Schorr supported his research through grantsmanship that included grants from many different sources (e.g., City of Chattanooga, National Fish and Wildlife Foundation, the U.S. Geological Survey).

Dr. Schorr loved teaching and his students loved him. Just last year he received the All-Southern Conference Faculty of the Year award.

A loving husband, father and grandfather, Dr. Schorr was devoted to his family. He was also a good friend to just about everyone he got to know. He will be greatly missed by all.

As a wonderful gesture to honor Dr. Schorr's work here at UTC, some of his former students have commissioned a painting of fish in their natural habitat. This painting, along with a plaque documenting

the donation, has been hung in the lobby of Holt Hall.

In honor of Dr. Schorr's life and work here at UTC, the BGE department has worked with UTC's Development Office to help establish the "Dr. Mark Schorr Memorial Fund for Graduate Students" to support graduate student research, travel, scholarships or the greatest needs of the graduate student recipients. Donations to this endowed fund (earmarked for the fund) would be greatly appreciated.