Across the state, UT faculty, staff, and students engage in several forms of outreach.

Imagine Tennessee, a new initiative in the UT Office of Community Engagement and Outreach, will build the capacity for community partners, faculty, staff, and students to engage in mutually beneficial projects. The goal is to connect and equip community-university partners to advance common goals for the good of our local community and the state.

An interactive ArcGIS map illustrates the reach of engagement and outreach projects across the state and beyond. Of the 515 current projects, UT College of Arts and Sciences faculty and students are leaders of 182 projects.

One such project is Biology in a Box, a fun and challenging way for K-12 teachers to enhance their life sciences curriculum and encourage student interest science, technology, engineering, and math disciplines. The program employs a hands-on, inquiry-based approach to teach the wonders of the living world. Teachers and students explore 12 thematic units, or boxes, designed to enrich science curriculum content for students from elementary to high school. Learn more at biologyinabox.utk.edu.
Introducing **HIGHER GROUND** 2018

Community Engagement describes the collaboration between higher education institutions and their larger communities for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.

– Carnegie Foundation for the Advancement of Teaching

---

**HIGHER GROUND** is the annual report of the College of Arts and Sciences at the University of Tennessee, Knoxville.

**DEAN**
Theresa M. Lee

**EDITOR/WRITER**
Amanda Womac
Director of Communications

**ART DIRECTOR AND DESIGNER**
Susanne S. Cate
Print Communications Manager

**WEB DESIGNER**
Jeremy Hughes
Digital Communications Manager

All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status. In accordance with the requirements of Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990, the University of Tennessee affirmatively states that it does not discriminate on the basis of race, sex, or disability in its education programs and activities, and this policy extends to employment by the university. Inquiries and charges of violation of Title VI (race, color, and national origin), Title IX (sex), Section 504 (disability), the ADA (disability), the Age Discrimination in Employment Act (age), sexual orientation, or veteran status should be directed to the Office of Equity and Diversity, 1840 Melrose Avenue, Knoxville, TN 37996-3560, telephone 865-974-2498. Requests for accommodation of a disability should be directed to the ADA Coordinator at the Office of Equity and Diversity. PAN E01-1001-003-19 CAS JOB 19-040
A MESSAGE FROM THE DEAN

THERESA M. LEE — Dean, College of Arts & Sciences

Engaging Our Community

Painting murals on the walls of an elementary school library. Teaching members of the public how write with a quill. Making ice cream with liquid nitrogen. Gazing at the night sky and contemplating the vastness of the universe. These are just a sampling of activities students and faculty in the College of Arts and Sciences facilitate in our community — from elementary school students to the broad public.

Part of our vision as a college within a land-grant institution is providing our students with opportunities to apply what they learn by working with faculty engaged in community outreach locally and around the world. In this edition of Higher Ground, we highlight outreach as a mission and feature activities our students, faculty, and staff engage in throughout the year.

One goal of community engagement is to educate the public and encourage young people to seek a college education in order to have more robust options for their future. PiPES, an outreach program in the Department of Psychology, provides opportunities for high school students in Appalachia to explore career options in science, technology, engineering, math, and medical sciences. UT students and faculty who facilitate the program also help the high school students overcome potential barriers to higher education. Through another program in the Department of Ecology and Evolutionary Biology, UT students and faculty work with Native American high school students to develop an interest in science and help them transition into college.

We also emphasize the impact of student engagement and strive to prepare our graduates as engaged, global leaders in a democratic society. Students in the Model UN program in the Department of Political Science travel across the country to discuss and debate international topics with students from other universities. At the local level, we host the annual Tennessee Ethics Bowl where teams of high school students engage in respectful dialogue about an array of controversial and complex issues.

As the academic foundation of the University of Tennessee, Knoxville, the College of Arts and Sciences contributes to all aspects of the university’s mission of teaching, research, and service. Our faculty, students, and staff embrace the Volunteer spirit through engagement and outreach to our local community, state, nation, and the world. By moving our scholarship from the classrooms to community spaces, we embody the purpose of a land-grant institution by preparing our students to be productive and engaged citizens in our state and across the globe.
Visual and Performing Arts
The arts are written, visual, and performed interpretations of our physical and emotional world.

Students of the arts explore their creativity through art, music, and theatre.
Maynard Elementary Community Art Project

A mile north of the UT campus in a historically underserved school district, students at Maynard Elementary School are expressing their individuality by painting on the walls thanks to Jillian Hirsch, a graduate student in the School of Art.

In January 2018, Hirsch and a group of undergraduate students launched a weekly after-school art program to design and paint a mural in the Maynard Elementary School library. Originally funded by the UT Foundation and School of Art, the project continues with the help of a community incentive grant from UT.

Hirsch’s interest in the program stems from a profound love of teaching and learning. Prior to working on her MFA in ceramics, Hirsch studied fine art and K-12 education. She has also collaborated with nonprofit organizations, schools, and neighborhood groups on large-scale mosaic murals.

“Most of the work I have done is highly participatory in nature and structured in a way to provide many opportunities for direct community participation throughout all aspects of the project,” Hirsch said. “It’s important that community art is democratic, and that the creation and installation of artwork cultivates a sense of community.”

The primary artists are more than a dozen students from third through fifth grade. UT undergraduate art students serve as mentors to ensure the elementary school students are an essential part of the creative team. Since completing the mural, the team has continued to design and install a series of collaborative art projects throughout Maynard Elementary School.

“The whole school is a blank canvas,” said Amanda Beasley, a junior studying art history at UT. “The students are excited about everything, which refreshes my own eagerness to learn. Sometimes they ask questions I don’t know the answers to, and I think that’s really great!”

As the project grows, the group will look for more participants, apply for grants, and seek private donations with the goal of creating a self-sustaining program. The long-term goal is to provide an established platform for UT students and faculty to engage in cross-disciplinary research with various local partners on impactful community art projects.
When a high school student in the South chooses to study music, they typically take band courses due to the cultural emphasis on football. Choir is also a popular choice, which leaves string programs struggling to maintain a secure place in the curriculum. In Knox County, string programs exist in approximately one quarter of the high schools. This is due in part to arts program reductions in the 1980s, but also to the shortage of licensed string educators.

Faculty in the UT School of Music countered the problem in early 2000 and partnered with teachers in the Knox County School System to offer string education classes in elementary schools. Now closing in on its second decade, graduate students with the UT Strings Initiative Program provide free instruction of fifth grade string courses at Blue Grass Elementary School and Farragut Intermediate School. They also benefit from one of the most generous assistantships in the country.

“One of the most unique aspects about our program is that a graduate teaching assistant position can be awarded to individuals with a bachelor’s degree in string performance,” said David Royse, coordinator of music education. “The appointment may last up to three years while they pursue the master of music degree in music education and complete teacher licensure. The assistantship even pays for the student teaching semester.”

As a result of the program, administrators in Knox County and surrounding schools systems have hired several licensed string educators. Students in the Strings Initiative Program reach a level of proficiency in the first year that allows them to take part in summer string camps, join a middle school orchestra, and even audition for the Knoxville Symphony Youth Orchestra.

“An added benefit to the university is these talented graduate teaching assistants also play in our symphony orchestra,” Royse said. “So aside from the outreach to elementary schools and preparing string teachers, UT benefits from a quality string player.”

The Strings Initiative Program is sponsored by the UT College of Arts and Sciences and Knox County Schools.
“**To be or not to be: that is the question**” is perhaps one of the most famous lines from a Shakespearean play. Although they are not performing *Hamlet*, Knox County middle school students have the opportunity to improve reading proficiency and ease the transition from elementary to middle school through an innovative arts integration program — Shakespeare in Shades.

“This program not only helps us introduce theatre to the next generation, but uses it to help them build their reading skills while boosting their confidence and communication skills,” said Hana Sherman, grants, education, and outreach manager, UT Department of Theatre.

“Shakespeare in Shades also provides UT theatre students with hands-on opportunities to use the skills they’ve learned and refine their craft through teaching and mentorship of these middle school students.”

During the summer program, made possible by Great Schools Partnership, UT students serve as theatre assistants and mentors. They use theatre games with Shakespearean texts to develop the skills each student needs to stage the final performance. The UT students work with Knox County teachers and students to produce an adaptation of a middle school novel, which they perform for friends and family at the Clarence Brown Theatre’s Carousel Theatre.

“As we strive to create the best schools in the South, we must be creative,” said Stephanie Welch, president of the Great Schools Partnership. “Shakespeare in Shades taps into one of our community’s creative gems, the Clarence Brown Theatre, to build reading skills among middle school youth.”

On average, students lose nearly 36 percent of their school-year gains in reading during the summer, also known as the summer slide. According to a report from the Great Schools Partnership, students who participated in the 2018 summer session demonstrated an 83 percent growth in their oral reading skills.

Shakespeare in Shades is more than just a summer theatre camp. The program also aims to build confidence, leadership skills, and increase creative expression and classroom participation, using theatre as the vehicle. It prepares rising sixth-graders academically, socially, and emotionally for their new journey into middle school.

“One of the best parts of the Shakespeare in Shades program is the bond that forms between the UT student mentors and the middle school students,” Sherman said. “Not only do the sixth graders have wonderful role models, but our own UT theatre students see how what they study can be used to make a difference in our community.”
The humanities are studies of human values, capacities, and achievements focusing on the evolution of linguistic and artistic expression, religion, and philosophy.

Students of the humanities develop analytical skills, critical reasoning, language proficiency, historical context, and aesthetic appreciation.
Arab Fest

Celebrating the food, music, dance, crafts, and vibrant Arab American community in East Tennessee is at the heart of Arab Fest. Hosted by the UT Department of Religious Studies and Middle East Studies program and supported by the Arab American Club of Knoxville, the cultural festival draws thousands of visitors to UT — making it the largest public-facing event for the department.

“Arab Fest introduces our UT students to the diverse range of cultures in our Knoxville community,” said Erin Darby, associate professor of religious studies and co-coordinator of the event. “It also allows us to give back to East Tennessee as the only major Knoxville cultural festival that takes place on the UT campus. Arab Fest has become a safe and exciting place to learn, experience the world, and form relationships that last well beyond the end of the festival.”

In its fifth year, Arab Fest began when students from the UT Dig Jordan study abroad program wanted to share their cultural experiences with the UT community. Partnering with the Arab American Club of Knoxville, they kicked off Arab Fest in 2014. The festival grows each year and focuses on what makes up the majority of everyday life — food, music, art, family, and community.

“The festival also aims to encourage cooperation and integration between various Knoxville community groups throughout the rest of the year,” Darby said. “Providing a sensory learning environment, we hope to break down barriers and correct misconceptions that too often divide us.”
Latin Day

It started by listening. In 1980, Knoxville hosted the National Junior Classical League Convention. Afterwards, local Latin teachers and their students were energized. They wanted to keep that fire alive and reached out to faculty in the UT Department of Classics to help. Latin Day began in 1981 and 37 years later, the annual event is one of the most important one-day outreach events of the department.

“Latin Day draws more than 400 students each year from as far away as Nashville, the Tri-Cities, and Chattanooga to learn, enjoy a ‘Roman Lunch’ of pizza and cokes — as only teenagers can — and have fun together,” said Christopher Craig, classics professor and coordinator of UT Latin Day.

“These high school students are regularly the sort of high-energy, high-achieving students whom we hope to see at UT.”

Latin Day is a day of fellowship and fun for high school Latin students. Young scholars attend seminars, presented by faculty from the Department of Classics, with titles such as “Not Cool Man: Why the Romans really didn’t like Odysseus,” and “Pop Music & Latin Poetry: Re-imagining ancient verse.” Students engage in conversations with other enthusiastic and hard-working Latin students, tour campus, and find out about the opportunities that await them at the University of Tennessee, Knoxville.

It is also the department’s most important recruiting event. Alumni who had their first taste of UT by attending Latin Day want to send their children to the event.

“This is a great practical benefit as a recruiting pipeline to bring high-achieving students to our department,” Craig said. “But we really do it now for the same reason we did in 1981 — to keep strong ties with our fellow Latin teachers at the high school level and to serve as we can the young people of Tennessee.”

Author Fest

A unique exhibit during the 2018 AuthorFest, hosted by the UT Departments of English and Modern Foreign Languages and Literatures, traced an unexplored connection between words, pictures, and songs depicting Knoxville.

In “Mapping Knoxville Across Time, Media, and Cultures,” Bill Hardwig, professor of English, and Stefanie Ohnesorg, professor of German, explored the multimedia connections between the photography and journalistic work of Swiss writer Annemarie Schwarzenbach, the fiction of American author Cormac McCarthy, and the music and photography of the German band Buddy and the Huddle across seven decades, from the 1930s to the 1990s.

All of the artists and writers visited — or in McCarthy’s case, lived — in Knoxville and depicted the South, and in particular Knoxville, in their works. The exhibition photos and accompanying text connect McCarthy’s 1979 novel Suttree, which features Knoxville in the 1950s, to the photojournalistic work of Schwarzenbach, who visited the Southeastern United States in 1937. The work of Buddy and the Huddle brings an additional historical layer. The lead musicians were so enamored with Cormac McCarthy’s novel Suttree that, in 1996, they traveled to Knoxville to record several tracks of an album inspired by the characters and locations described in the book. During their visit, they took hundreds of black and white photographs, which in many ways, capture a similar mood to that sensed in Schwarzenbach’s photojournalistic work and McCarthy’s fiction about the “scruffy city.”

higherground.utk.edu
National History Day

History leaps off the pages of books and into the lives of middle and high school students during National History Day, a year-long education program for middle and high school students that engages both educators and students to improve the teaching and learning of history. For more than a decade, the UT Department of History has partnered with the East Tennessee Historical Society to support history teachers and their students across the state.

In Tennessee, more than 7,250 students participate. Throughout their research, students uncover untold stories, form special connections with people from the past, and discover that history impacts everyone. Participating students improve their research techniques, writing skills, historical knowledge, creativity, literacy, communication, civic engagement, and college readiness.

“National History Day provides students an opportunity to develop critical thinking skills and source analysis skills while gaining historical perspective,” said Lisa Oakely, East Tennessee NHD regional coordinator and curator of education at the East Tennessee Historical Society.

The largest component of National History Day is a project-based contest, which encourages middle and high school students to conduct original research on historical topics of interest. Guided by an annual theme, students choose a topic that matches their personal interest. For months, participants research the topic and present it in one of five categories: documentary, exhibit, paper, performance, and website.

“The National History Day Contest inspires students to challenge themselves,” said Cathy Gorn, executive director of National History Day. “Students become deeply invested in their projects and spend countless hours researching, creating, and revising. The work they produce is often astounding and the skills they gain will benefit them far into the future.”

In 2002, the UT Department of History and the East Tennessee Historical Society entered a partnership to co-sponsor the East Tennessee regional contest on the UT campus. More than 3,000 students participate in the East Tennessee Regional competition at the school level and more than 300 students from 28 schools advance to compete for the opportunity to represent the East Tennessee Region in the state contest.

“History Day directly connects the UT history department to the community it serves,” said Daniel Feller, professor of history and faculty advisor for the event. “It gives students not only an opportunity for expert criticism and assistance with their projects, but a chance to meet actual historians and scholars with national and international reputations. For us in the department, it provides an opportunity to be directly useful to our neighbors and fellow citizens and to encourage their love for history and interest in pursuing it.”
Ethics Bowl

At some point, everyone faces a moral dilemma. The question is — how often do we take the time to seriously examine how to make a decision using ethical reasoning?

Established in 2010, the Tennessee High School Ethics Bowl (THSEB), hosted by the UT Department of Philosophy, is a competition for high school students to discuss controversial ethical issues. It provides students with the opportunity to sharpen their critical thinking and moral reasoning skills and prepares them to become leaders of the next generation.

Disagreement on a variety of issues is a hallmark of a modern democracy. In order to function, a society needs citizens capable of engaging in respectful deliberation and dialogue about an array of controversial and complex issues with an emphasis on reasoning. At its heart, Ethics Bowl is a discussion — not a debate.

“The spirit and essence of the Ethics Bowl are captured in the gathering of passionate and intelligent students who aim to articulate what is truly valuable and important about life,” said Alex Feldt, senior lecturer of philosophy and THSEB director. “It allows students to prepare themselves for engaging in conversations they will undoubtedly encounter in college and beyond. It prepares them to be thoughtful citizens in our democracy.”

Before competition, volunteers visit schools and work with students to develop their arguments and critical thinking skills. During the competition, teams analyze issues and present their ideas to a panel of judges. There are no right or wrong answers — only the sincere attempt to articulate what the team thinks is truly valuable and important from an ethical standpoint. Although aimed at promoting a collaborative and respectful discussion, the event is a competition. The winning team goes on to compete at the National High School Ethics Bowl.

The focus on engagement, reasoning, and critical dialogue benefits student learning by honing skills proven to boost standardized testing performance, which Tennessee educational standards target. In addition, students have social and intellectual interactions that allow them to be considerate of other perspectives when making moral judgements and decisions. Several participating schools have even added philosophy to their curriculum.

“In a democratic society like ours, we are always going to have disagreements and, in particular, moral disagreements,” Feldt said. “To function well, we all need to be able to engage each other in respectful debate and dialogue rather than retreating to our corners. The Ethics Bowl helps students develop a foundation for thoughtful discourse.”

The Tennessee High School Ethics Bowl is co-sponsored by the UT Humanities Center and supported by Home Federal Bank.
Part of the Marco Institute’s outreach initiative is to encourage students of all ages to think about the humanities as something exciting and worth exploring,” said Katie Hodges-Kluck, program coordinator for the Marco Institute. “We also want students to know that they can study these and other related subjects in college. Medieval Day is a way to bring medieval culture to middle and high school students and teachers in the Knoxville area.”

Medieval Day has something for everyone. Students watch medieval fighting demonstrations put on by members of the Barony of Thor’s Mountain and get to try their hands at writing with quill pens on parchment — just like medieval scribes.

“We want to give students a chance to experience the medieval world — to see its art, to hear its languages, even to wear its armor and carry its weapons,” said Jay Rubenstein, Riggsby Director of Marco. “Medieval Day is a chance for Marco to give back to the community and introduce students to a rich and wild historical tradition that they might otherwise never get to study in their regular classes.”

UT faculty and graduate students also present research in a conversational setting to help students, teachers, and members of the community understand more about the Middle Ages.

“The medieval period is often viewed as ‘the Dark Ages’ — a monolithic, dirty, violent, backward age full of disease with few laws and barbarians ravaging the countryside at every turn,” Hodges-Kluck said.

In reality, the Middle Ages encompass a period of approximately 1,000 years, from c. 500 to c. 1500 CE, throughout Europe, the Middle East, Central Asia, and Africa.

“That’s a huge amount of time and space, full of countless different peoples and cultures, to be reduced into a single stereotype,” Hodges-Kluck said.

Students and teachers who attend Medieval Day have constant reminders that innovations we take for granted today — such as the format of the modern book — were birthed during the Middle Ages. Modern languages like French and Spanish took shape during this era. Medieval thinkers developed religious and philosophical ideas still around today.

“The medieval period was often an era of innovation, exchange, and the creation of works of exceptional beauty,” Hodges-Kluck said. “It is immensely rewarding to open an 800-year-old manuscript and become immersed in the concerns, hopes, and imaginations of the people who created it.”
The natural sciences examine the structures and components of the natural world and the universe.

Students of the natural sciences learn how to use tools of science to devise and test hypotheses and solve problems from a scientific or mathematical perspective.
Diversity in the scientific workforce is on the rise thanks to numerous programs across the country engaging underrepresented minorities in science. One group, however, is absent from the scientific research workforce — the deaf and hard-of-hearing. Thanks to a research program in the Department of Biochemistry and Cellular and Molecular Biology (BCMB), outreach efforts to engage this population in research are gaining ground.

Gladys Alexandre, BCMB department head and professor, first initiated this effort in 2015 with a visit to the National Technical Institute for the Deaf at Rochester Institute of Technology.

“I recruited one undergraduate student to work in my lab for summer research in 2015 as a pilot,” Alexandre said. “The internship was so successful that the next year, six students from NTID came to UT for summer research and worked in a variety of labs in BCMB.”

Today, the program includes a four-week paid summer research experience for deaf and hard-of-hearing high school students from Knoxville and Nashville who work in Professor Tessa Burch-Smith’s lab supported by an NSF CAREER award. The internship experience includes research skills and professional and career development activities. Students present posters and engage in lab experiences in order to develop their own fascination with scientific research.

In addition to American Sign Language interpreters from the UT Office of Disability Services during large group meetings, BCMB personnel and NTID students take a more creative approach to daily communications. Use of digital voice-to-text apps and a constant use of notepads made communicating in the lab much easier than most of the mentors anticipated.

“The experiences are eye opening in terms of how lab communications and interactions are conducted and how to make them inclusive to deaf and hard-of-hearing individuals,” Alexandre said. “These students are very bright, work hard, and pay close attention to the subject being discussed. We look forward to our ongoing outreach to this community of student scholars.”
Kimberly Sheldon understands the challenges of being a first-generation college graduate and when she met Caleb Hickman, an enrolled member of the Cherokee Nation, they formed an immediate bond over a shared history of being first-generation students.

“We talked about some of the challenges we faced transitioning to college,” said Sheldon, assistant professor in the UT Department of Ecology and Evolutionary Biology. “After discussing how best to help students with this transition, I wanted to develop a long-term, sustainable program for high school students that uses authentic research experiences to foster an interest in science and help them transition to college life.”

Hickman, a supervisory biologist for the Office of Fisheries and Wildlife Management for the Eastern Band of Cherokee Indians, shared her vision and commitment to a sustainable partnership, and last year, the two embarked on a collaboration for an annual summer research program. Specifically, Sheldon and Hickman’s program targets Native American students and students from rural communities, who represent the largest equity gap in STEM fields.

“This program is intended to bridge the gap of opportunity and expose high school students to research, technology, and a career in science,” Sheldon said.

Last summer, Sheldon and Hickman launched the first year of the program with help from members of Sheldon’s lab, including UT EEB postdoc Amanda Carter, graduate student Maggie Mamantov, and undergraduate students Will Kirkpatrick and Shelby Collins. Over a two-week period, the team taught four high school students from Cherokee High School and Swain County High School about the impacts of environmental change on native fauna through a field-base, hands-on experiment. Participants used hands-on research experiences and technological training to increase their interest and abilities in STEM fields. Students also gained a better understanding of place and preservation of culture through an introduction of the species of their homeland.

“Our long-term aim with this program is to increase the representation of Native Americans and those from rural communities in STEM fields and to create a future-ready workforce for the region,” Sheldon said.
graduate students in the UT Department of Microbiology spark the curiosity of students from rural and urban communities. In 2017, the UT chapter of Ask a Scientist began collaboration with the Knoxville Zoo to host a number of outreach events.

“Our objective for these outreach opportunities is to foster curiosity and the joy of learning about science topics to people who may have heard science topics in the news, or elsewhere, but had little information,” said Karissa Cross, Ask a Scientist vice president and PhD candidate in the microbiology department. “We also wanted people from these communities to be able to talk with scientists from diverse fields of study.”

The first event at the Knoxville Zoo was part of a Girl Scouts program. The young girls spent the day learning about different aspects of the zoo and native species of Tennessee. Volunteers spoke to more than 100 Girl Scouts about native bee populations and the importance of bees for plant and agriculture health.

“We introduced the girls to ethology — the study of animal behavior — and had them participate in a game designed after the bee waggle dance in which they had to communicate with each other without using words,” Cross said. “In the end, the girls learned about ways to help native bee populations and showcased their knowledge with a fun game.”

During Hogwart’s Adventure Day, an annual Harry Potter-themed event at the Zoo, members of Ask a Scientist hosted a Potions Class with interactive activities for kids. Science experiments included a yeast reaction that produced elephant toothpaste, baking soda rockets, and dry ice geysers.

Their biggest outreach took place during the weeklong Boo! at the Zoo event. Each day, UT students conducted experiments that taught kids about gas and atmosphere science, acid-base and polymer chemistry, and intermolecular polarity.

“At first glance these topics may seem intimidating, but we presented them in a way that engaged and encouraged everyone to be involved,” Cross said. “Our collaboration with the Knoxville Zoo over the past year has far exceeded our expectations. We’ve received positive feedback and comments from parents who said we encouraged their children to want to be involved in science.”

Through the collaboration, several UT microbiology students had the opportunity to gain experience interacting with the public about various fields of science.

Kids U in the Department of Microbiology is another outreach opportunity for graduate students. During the summer camp program, students in grades third through twelfth learn from college faculty, staff, and graduate students about science. It is part of a larger outreach effort at the University of Tennessee, Knoxville.

UT is one of the few institutions with an entire department dedicated to microbiology. Faculty and graduate students have a variety of technologies available to facilitate learning through hands-on techniques, which kids enjoy.

“One of the most impactful things of Kids U is the general eagerness of the students to learn,” said Jonelle Basso, microbiology PhD candidate and instructor of Kids U camps in the department. “They start to relate microbiology to everyday life and share what they learn with their family and friends. It sparks interest in the ‘unseen world’ of microbes and how they impact everyone.”
Are space and time intertwined? Is light a particle or a wave? What are the building blocks of the universe?

Finding answers to these questions can be daunting for members of the public, but students and faculty in the UT Department of Physics and Astronomy make it a bit easier to understand the science behind the universe through several engaging outreach programs.

Paul Lewis directs astronomy outreach for the department, leading astronomy enthusiasts through programs on the roof of the Nielsen Physics Building, in the department’s planetarium, and at schools and state and national parks across Tennessee. Programs include Exploring the Solar System and Mission to Mars, star parties, solar observing, and observations of the night sky. Interested in upcoming astronomical events? Tune in to Live at Five at Four on WBIR-Knoxville where Lewis makes regular guest appearances.

Kranti Gunthoti organizes Physics for Everyone, a fall lecture series for the public, which features faculty lectures on topics such as the fundamental building blocks of the universe, the weird and mysterious quantum world, and Einstein’s revolutionary ideas. In Saturday Morning Physics, faculty, along with experts from other UT departments and the Oak Ridge National Laboratory, explain how their research ties in with some of the important scientific questions that challenge our thinking and help shape our future.

The UT chapter of the Society of Physics Students also has a strong outreach component. They have physics demonstrations at the Muse Knoxville, a children’s science museum, which include making ice cream with liquid nitrogen. Members of the public can catch demonstrations on Market Square in downtown Knoxville. To celebrate Halloween, students host a Pumpkin Drop, complete with a costume contest, music, food, and the grand finale of dropping pumpkins frozen in liquid nitrogen just to watch them shatter on the UT Humanities Plaza.

Assistant Professor Sowjanya Gollapinni launched the NSF-funded QuarkNet program in 2017, which connects high school students and teachers with physicists on projects exploring the hidden nature of matter, energy, space, and time. With the help of two high school teachers, Gollapinni built a cosmic ray detector and cosmic ray data analysis in order to analyze real data from an experiment at Fermilab, a national particle physics and accelerator lab in Illinois.

From the smallest of particles to the Milky Way and beyond, the department is committed to engaging audiences of all ages and interests to share the marvels of the physical world.
The social sciences explore the relationship among human beings and promote an understanding of our numerous societal and individual relationships.

Students of the social sciences study individual, economic, political, and social behavior.
Social sciences
A pplying skills learned in the classroom to real-world scenarios is the goal of experiential learning at UT. Students in the Department of Political Science excel at this endeavor thanks to the Tennessee Model United Nations program.

The Model UN is a team of students who travel across the United States to discuss and debate international topics with students from other universities. Taking their knowledge of current world affairs, students work as delegates of various nations. In competition, students develop solutions to real-world problems. During the 2017-18 campaign year, the Tennessee Travel Team finished in the top 50 of the North American College Model UN World Division Rankings.

"Our team has put forth tremendous effort to become formidable in such a competitive circuit," said Charles Briones, senior in political science and president of the organization. "Our success puts us in the company of universities such as Georgetown and Harvard as top Model UN programs. Our ability to compete well against these teams is due to the courses and support in the UT political science department."

Another component of the program is the Volunteer Model UN conference, a three-day conference for high school students. The conference is a chance for delegates to conduct conversations on international relations and explore solutions to global problems. It also has the added benefit of being a great recruiting tool.

"The Volunteer Model UN is an excellent bridge for motivated high school students to visit campus," said Jonathan Ring, lecturer of political science and program advisor. "We have connections with numerous high school clubs who compete each year. Many students are so impressed that they end up coming to UT and joining our club."

Students who end up as Vols are among the most active students in the political science major. As alumni, they continue to have strong connections to the organization, department, and the university.

"My primary goal for the program is to provide a forum to let students' natural enthusiasm for learning and need for socializing loose," Ring said.

Members of the program are highly motivated and well organized. They learn valuable skills, such as public speaking, debate, research methods, and professionalism, as well as build strong friendships and a lasting connection to the university.

In the end, Ring wants to ensure the club maintains an open door to new students interested in joining the Model UN.

"I hope it continues to socialize younger students to become the organization's future leaders," Ring said.
Forensic Science Internship Program

Students studying forensic anthropology at UT have a unique opportunity to conduct research at the Anthropology Research Facility where more than 1,400 individuals have donated their bodies to science.

Now, high school students in Knox County interested in forensic science, but without the option to attend specialized CSI camps or other extracurricular, and often expensive, possibilities, can test their skills at forensic anthropology during an after-school internship program.

“The goal of the internship is to select students who have considerable interest in forensic anthropology, or a related field, but limited opportunities,” said Giovanna Vidoli, assistant director of the UT Forensic Anthropology Center. “The outreach program allows us to introduce forensic anthropology, and experts in the field, to high school students who may not ever have that opportunity.”

During the internship, students work with donor skeletons in the Bass Collection and learn methods forensic scientists use to identify unknown individuals. Students are grouped in small research cohorts based on their interest. Each group is assigned a graduate student mentor who helps them design and carry out a research plan. Students present their research to parents and teachers during an open house on the final day of the program.

Vidoli works with a graduate student committee to select interns for the two-week program. They accept applications and their goal is to choose one student from each of the Knox County high schools, which allows students from different schools and different experiences to interact and learn together.

“The experience trains our graduate students to be good committee members and great mentors,” Vidoli said. “It also provides a challenging and unique opportunity to interested high school students and helps diversify the field of forensic anthropology.”

GEOGRAPHY

Mission: Outreach

UT geography students are bridging the gap between the knowledge of geography and geospatial technology and the need for these skills in the professional world by partnering with K-12 students, teachers, and administrators, as well as the public, to promote geography as a major and career option.

“Very few students choose to major in geography when they begin their academic career at UT,” said Michael Camponovo, GIS outreach coordinator. “Most geography majors switched in their sophomore or junior year after taking a geography elective, which indicates the need to promote geography before they get to UT.”

To address this issue, Camponovo and his students partnered with Vine Middle Magnet School and taught the students how to use GIS, collect field data using iPads, and produce Story Maps they can share with their families, schools, and communities.

“We hope that supporting these students will encourage them to continue their geography and geospatial education and choose our department for the foundation of their career,” Camponovo said.

Another outreach effort in the UT geography department is through the Tennessee Geographic Alliance (TGA), a nonprofit educational organization focused on fostering collaboration with college and university geographers, teachers in K-12, educational administrators, private industry, and other interested parties to advance geographic literacy.

“Geography has an image problem, especially in K-12 schools in Tennessee,” said Kurt Butefish, coordinator of the Tennessee Geographic Alliance. “We have to actively educate students that geography is a viable career path and then recruit them into our programs of study.”

Without greater buy-in from teachers and administrators, however, the struggle to expand the reach of these programs will continue. During the 2017-18 academic year, UT geography students and staff taught more than 200 K-12 teachers and administrators in East Tennessee about geospatial technology through Geospatial Academies, a strategic partnership orchestrated by members of the TGA.

“The success of the GIS and Community Outreach Lab over the past couple of years is a direct result of both the exciting research being conducted by UT faculty, staff, and students, as well as the foundation laid by the TGA,” Camponovo said. “As a result of combining our different strengths, we reach an average of 4,000 people at more than 80 different events each year. None of this would be possible without the Volunteer Spirit embodied by our department.”

higherground.utk.edu
Historically, people in Appalachia have limited access to healthcare and public health education, which contribute to increased incidences of disease and shorter lifespans than the conventional population in the United States. Rural Appalachian adults are also less likely to trust people from outside their communities. As such, recruiting more research scientists from rural Appalachia is essential for reducing the critical public health disparities in the region.

PiPES: Possibilities in Postsecondary Education and Science is a project that provides opportunities for tenth- and eleventh-grade students in Campbell and Monroe Counties to explore careers in science, technology, engineering, math, and medical science (STEMM) and to promote college awareness.

“Most interventions to increase STEMM interest focus solely on exposure to research opportunities,” said Erin Hardin, UT professor of psychology and co-primary investigator for the grant. “Our program is unique because it integrates a focus on career exploration and college-going barriers and supports. Getting students interested in STEMM won’t work if those students believe college is not even an option.”

PiPES is a model of outreach as service. Teams of UT graduate and undergraduate students deliver curriculum designed for high school students to explore their interests, values, and goals as they relate to the world of work. Students learn about post-secondary education options. They discuss perceived barriers to education and strategies to overcome them, as well as the range of potential career opportunities in STEMM.

“The world of work has changed so much in the past few decades,” Hardin said. “It used to be possible to obtain well-paying work with benefits that allowed people to stay connected to their home communities without any kind of education or training after high school. That’s just not true anymore.”

Hardin and her team received two new grants to extend the work to include free job coaching and career counseling services and a $3 million grant from the National Science Foundation to provide scholarships for low-income Appalachian students to pursue arts and sciences STEMM degrees at UT.

“STEMM-related jobs not only represent some of the biggest growth industries in our state and elsewhere, they also have tremendous potential for addressing many of the most-pressing concerns throughout the state, thus allowing people to use their education and training to remain connected and give back to their communities,” Hardin said. “The outreach as service work of PiPES is only just beginning.”
Students in the Department of Sociology’s spring 2018 applied research course engaged in advanced undergraduate community-based participatory research on gentrification and development in Knoxville. Louise Seamster, a postdoctoral teaching associate, designed the course to draw connections between theoretical material, case studies, and local issues to get students out into Knoxville to understand questions such as how race and class shape communities and conflicts surrounding development and what their role is in the cities they live in — not only as researchers, but also residents.

“Universities have an often-deserved reputation for extracting knowledge of many kinds from an area without offering information or other forms of reciprocity in return,” Seamster said. “We should model responsible, reciprocal, and relevant research for our students and remind them of the real human stakes of the things we study. We all live somewhere.”

Students learned about historical and current urban practices that result in racial inequality and displacement and read about alternative ideas about cities. Students looked at sites of urban renewal in Knoxville and studied the city’s zoning code. They conducted primary research on a topic of their choice by interviewing key players in the city’s development, attending meetings, and speaking with residents.

“I designed the class to be woven into the broader university and city at multiple levels, providing a sense of how these ideas fit into a network of places and people approaching development questions from various perspectives,” Seamster said.

Community experts visited class and shared theoretical frameworks they developed to understand dynamics of racial displacement in Knoxville and beyond to try and build a more just and equitable city. These included applying a human rights framework to zoning and thinking critically about who is allowed to “improve” somebody else’s neighborhood.

“By the end of the class, students were thinking much more deeply about Knoxville and their own hometown,” Seamster said. “They were seeing the city differently — not just as residents, but as urban sociologists.”

Each group of students presented their research findings outside the classroom. Four groups presented at the sociology’s department colloquium series and three other groups presented at a three-part community zoning forum series that addressed historic and current issues of displacement and development in Knoxville. Overall, the series, which took place at Mt. Calvary Church, helped build relationships with significant community groups and organizations, which will result in expanded opportunities for undergraduate engagement.

“The UT Department of Sociology has a long commitment to social justice and several faculty and students engage in community-oriented work,” said Meghan Conley, director of community partnerships in the department. “Dr. Seamster’s course was a true collaboration with community members. At every point, Dr. Seamster’s class emphasized the value and spirit of community-engaged scholarship.”

By the end of the class, students were thinking much more deeply about Knoxville and their own hometown.”
- Louise Seamster
The Visiting Scholars project brings distinguished humanities scholars and renowned artists to the Knoxville campus and connects UT humanities faculty and students to the best researchers in their fields. Some of the most cutting-edge and prolific intellectuals in the humanities today visit campus and deliver public lectures, connecting the humanities with our community.

“Dialogues: Region and Nation” is a mini-series within the UT Humanities Center Visiting Scholars project. A lecture and discussion series, “Dialogues” presents renowned scholars and artists who speak to our local, regional, and national concerns.

To learn more about these and other public humanities events, visit humanitiescenter.utk.edu.
In Fiscal Year 2018, the college had available resources of $166,616,641 in unrestricted and restricted funds.

**Sources of Funds**
- **46%** Recurring College Budget (state allocation and tuition)
- **23%** Additional Central Support (benefits, funding transfers)
- **16%** Grants and Contracts
- **5%** Additional Instructional Funding from Central Administration
- **3%** Endowment Income and Gifts
- **2%** Net Facilities and Administrative Cost Recoveries
- **2%** Summer School Revenue
- **2%** Revenue from Educational Sales and Services
- **1%** Central Funding of Joint Institutes, matching funds, etc.

**Use of Funds**

**Expenditures by Category**
- **38%** Faculty Salaries
- **18%** Operating
- **18%** Staff Benefits
- **10%** GTA, GA, GRA Salaries
- **6%** Professional Salaries
- **4%** Clerical, Technical, and Maintenance Salaries
- **3%** Equipment
- **1%** Administrative Salaries
- **1%** Student Employees
- **1%** Summer School Instruction
The College of Arts and Sciences is the academic foundation of the University of Tennessee, Knoxville and the largest contributor to all aspects of UT’s missions of instruction, research, and service to society.

A key ingredient to this success is recruiting, retaining, and supporting world-class faculty who pursue innovative research and creative activity. In order to attract and retain top minds from the around the world to teach, mentor, and work alongside our students, we take an active role to provide the necessary resources that make our college a destination workplace. Philanthropic support, such as the Chancellor’s Faculty Support Challenge, helps provide these resources and propel us to new levels of excellence.

Investment in our faculty provides an immediate impact on our students. In order for our graduates to be successful and compete in today’s global marketplace, they must be equipped with cutting-edge research concepts and creative activities. Top faculty members provide quality educational experiences for our students and create the next generation of leaders for our state and nation.

Our network of alumni and friends in the College of Arts and Sciences accepted the Chancellor’s Faculty Support Challenge. To date, we have establish 20 endowments to support faculty salaries. Thanks to your support, we have the means to reward and retain outstanding faculty, which, in turn, help us recruit talented students and ensure our graduates receive the best research training, creative activity engagement, and other opportunities that expand their worldview and create options for their future.

The Chancellor’s Faculty Support Challenge continues. Join us on our journey and help support our faculty and transform the lives of the next generation of Vols.

"I am very thankful for the recognition and support of my teaching and research efforts through the A. Van Hook Faculty award. Maintaining an active research group involving both undergraduates and graduate students, as well as teaching, is a very demanding responsibility. Being recognized for what we have accomplished is like hearing the university say “good job.” Everyone likes to hear those words once in a great while.

- Craig Barnes, Professor
Alexander Van Hook Faculty Award in Chemistry Endowment"
In 2018, we celebrated the official opening of our second state-of-the-art science facility, the Ken and Blaire Mossman Building, a 221,000-square-foot, six-floor facility that houses microbiology, biochemistry, cellular and molecular biology, psychology, and nutrition. It features interactive classrooms, laboratories, and ample gathering spaces and study areas, which will allow students, faculty, and staff to come together to collaborate and innovate. The classrooms and laboratories will give students hands-on experience to prepare them for future careers in their chosen fields.

A commitment to higher education and biomedical research drove Ken and Blaire Mossman’s philanthropic endeavors at UT. Their contributions to the university fund the Kenneth and Blaire Mossman Professorship in the College of Arts and Sciences and study abroad scholarships for undergraduate students in the Romance languages. Their estate gift also funds the annual Mossman Lecture, which brings nationally recognized speakers to campus to promote interest in science among youth. The Mossmans were also strong believers in the value of a liberal arts education and served as members of the College of Arts and Sciences Dean’s Advisory Board.

“A commitment to higher education and biomedical research drove Ken and Blaire Mossman’s philanthropic endeavors at UT. Their contributions to the university fund the Kenneth and Blaire Mossman Professorship in the College of Arts and Sciences and study abroad scholarships for undergraduate students in the Romance languages. Their estate gift also funds the annual Mossman Lecture, which brings nationally recognized speakers to campus to promote interest in science among youth. The Mossmans were also strong believers in the value of a liberal arts education and served as members of the College of Arts and Sciences Dean’s Advisory Board.

The Mossmans truly embodied the Volunteer Spirit in giving back. Their generosity will impact UT students and faculty for generations.

“...By providing a space for students to come together and collaborate, the Ken and Blaire Mossman Building is making a transformative impact on our college and our university.”

Theresa Lee, dean of the College of Arts and Sciences.

The gifts from Ken and Blaire are making a transformative impact on our college and our university,” said Theresa Lee, dean of the College of Arts and Sciences. “This building, named in honor of their memory, celebrates their long history with UT and their passion for international experiences and biology and science education.”

Ken and Blaire Mossman met in Knoxville in 1968 while pursuing their degrees at UT. Ken Mossman earned his master’s and doctoral degrees in health physics and radiation biology through the Institute of Radiation Biology, a joint program of UT and Oak Ridge National Laboratory, in 1970 and 1973, respectively. Blaire Mossman earned a bachelor’s degree in French from UT in 1971. She died of brain cancer in 2011 at age 60; Ken Mossman died suddenly in 2014 at age 67.

The Ken and Blaire Mossman building décor incorporates inspirational quotes with images of research conducted in the building. The mural pictured above is the first thing students see when they enter from Cumberland Avenue.
The Great Smoky Mountains National Park

is a UNESCO World Heritage Site, an International Biosphere Reserve, a Biodiversity Hotspot, and a naturalist’s paradise. The Smokies also are at our own backdoor. Since 2016, EEB has offered a field course, EEB 480: Natural History of the Great Smoky Mountains, that allows students to explore the plant and animal communities, geology, geography, and human history of our nation’s most visited national park.