ENS goes global
Each year, some 250,000 American students study abroad. Unfortunately, only about three percent of them are science and engineering students, even though those students make up 15 percent of all enrollments. The College of Engineering and Natural Sciences is doing its part to change that statistic.

The importance of an international experience cannot be overemphasized. In 2004, the Institution for the International Education of Students surveyed 3,400 former study abroad students. An overwhelming majority indicated their international experience had been a defining moment in their lives.

“Not only does international travel make you appreciate other cultures, it also makes you appreciate your own,” said Steve Bellovich, ENS dean. “Here in the United States, we tend to take things for granted, like easy access to clean water. Seeing other cultures helps students understand that our lifestyle is not the norm.”

Traveling abroad also gives young adults the opportunity to “test their wings” before they leave the nest of college. Living in another country requires students to be independent, innovative, and patient while communicating with people from another culture.

“There probably won’t be someone who can fix their problems for them,” Bellovich said. “There are always glitches associated with travel, and they have to work through them. Students return home confident that they can take care of themselves in the world.”

The travel programs also prepare students for the global economy they will soon encounter. As students join the workforce, they will be more comfortable interacting in the pervasive global market if they have had travel abroad exposure.

“A recent study showed that 65 percent of our engineering and science graduates will have coworkers whose native language is not English,” said Cheryl Matherly, associate dean for global education. “Our graduates are working for multinational companies with coworkers, suppliers, and customers all over the world. They need to be prepared for that.”

Traditionally, there have been many obstacles to engineering and science students studying abroad. Rigorous academic schedules often prevent students from taking time to travel. Engineering and science students also tend to find high-paying summer jobs, complicating the decision to travel during the break. ENS is working to overcome these obstacles.

“We are creating opportunities that work within their academic program,” Bellovich said. “We are also creating some short-term opportunities at different times of the year. That way, students are not dedicating an entire summer to traveling but still get the benefit of the study abroad experience.”

Bellovich said ENS faculty are working hard to seek out more opportunities for students. The University is supporting that effort.

“The Center for Global Education has done a lot to expand programs for engineering and science students and help them take advantage of current programs,” he said.

In the past year, students throughout the college have had the life-changing opportunity to travel abroad: Some were part of a brain-trust exchange in nanotechnology between Japan and the United States; some used their engineering skills to solve real-life problems for Third World communities; and another group spent time in the rain forest, immersing themselves in a biological sphere that was disappearing almost before their eyes.

Thanks to the efforts of the college and University, ENS students are blasting away national statistics on students studying abroad.

“Right now, 19 percent of ENS students are participating in some kind of study abroad,” said Matherly. “Compared to three percent nationally, that is amazing.”

Continued on page 2

Research in the rain: Biology study abroad program journeys to Costa Rica

The six biology students had expected a lot of rain. They were, after all, in the middle of a Costa Rican rain forest. But while visiting the La Selva Research Station for 10 days over the 2008 Thanksgiving holiday, they learned how an unexpected two-day deluge can send even the best-planned research project down the drain.

The students were part of the first study abroad program offered by the Department of Biological Sciences and sponsored by the TU Center for Global Education. The course and trip were led by Glen Collier, professor of biological science.

“An unexpected tropical depression moved over our area while we were there,” Collier explained. “We had drenching rain for 36 straight hours, requiring several students to revamp their research projects. But becoming resourceful researchers and travelers was one of our goals. The rain helped that.”

Collaborative study abroad program
The idea for the Costa Rican rain forest study abroad course was conceived when TU’s Center for Global Education (CGE) sponsored Collier’s visit to the Galapagos Islands in 2005.

“It was an amazing trip,” Collier said. “I learned a lot about the politics of conservation that surprised me. I also saw firsthand how biodiversity is disappearing before our eyes. I knew students couldn’t appreciate that sitting in a classroom. I had to find a way for them to see it themselves.”

Creating a study abroad opportunity was never far from Collier’s mind. The idea solidified as he traveled to La Selva during his sabbatical leave last year to collaborate with an Illinois State University (ISU) colleague on a research project.

The La Selva (Spanish for “the forest”), Biological Station is located at the confluence of two major rivers in the Caribbean lowlands of northern Costa Rica. Since 1968, it has been run by the Organization for Tropical Studies, a world-renowned consortium of 63 universities and research institutions, led by Duke University. It features nearly 4,000 acres of pristine lowland rain forest.

Collier’s colleague at ISU has led a study-abroad course to La Selva for undergraduate and graduate students for several years.

As Collier learned about the course, he decided to develop a program that would parallel ISU’s course,
Students continue work in China

Last summer, 10 ENS students traveled to this province in China as part of TU’s Sustainable Energy for Northern East Asia (SENEA) project. This TU-ENS organization works to help impoverished Chinese villages implement strategies that improve their quality of life in a sustainable way.

Marilyn Holland, an engineering technology junior and a member of SENEA and has worked on the project since it began in 2006. "We are working with a Chinese-americam non-profit organization (NOGO) in China," Holland said. "They have a non-profit community organization and they have local citizens the sustainable farming techniques that were learned in the project." SENEA supplements that existing program by developing and implementing energy and building solutions that improve the communities.

"In China, the students lived with the NOGO family in their home. There were 10 people in the couple of two households,” Holland said. "The NOGO were so excited to be there making a difference that we really didn’t notice." Six of the students used their experience as part of the Tohoku Research Undergraduate Challenge (TRUC) program. Some papers on their research experiences, and many of them presented at the TU Research Colloquium this spring.

"The TRUC program has helped my opportunity," Holland said. "Two of us were able to return to China over Thanksgiving to present future projects." Holland said and about 10 more students plan to return to China next semester, and the group is working hard for all its members to get to go to China.

For the first time, Holland won’t be on the next trip to China. Holland said that "the majority of the students have encountered and was also part of SENEA. He has the unique ability to immers two experiences to research about a topic and quickly learn from others."

While at Tohoku University, Students studied research titled Nuclear Magnetic Resonance and spent most of the time in the laboratory doing research. But said the students some as improved with Spencer's work, they sort the equipment back with him to Tohoku so she could continue the research.

Becoming an engineer is competitive, so the students have heard how wonderful this experience is, I expect many more will want to do it," Holland said. "You learn a lot about who you are when you are abroad," he said. "I had to interact with people from another culture every day, and for every meal. When I look back, I am amazed at how much I was able to handle on my own."
Features

TU/OU offer physcian assistant assistant program in Tulsa

The first year, to facilitate preparation for the second year, the second year, and the third year, the student will participate in a series of seminars, workshops, and clinical practicums. The third year of the program is designed to prepare students for the National Board of Medical Examiners' (NBME) Clinical Simulation Exam and the National Board of Medical Examiners' (NBME) Clinical Simulation Exam II.

The program's faculty members are experienced in their respective fields and are committed to providing high-quality education and training. The program is accredited by the Accreditation Council for Pharmacy Education (ACPE) and is one of the few programs in the state that offers a dual degree in pharmacy and health sciences.

The program is open to students who have completed at least one year of college coursework in the sciences and who meet the minimum entrance requirements set by the program. Interested students are encouraged to apply online or by contacting the program's admissions office for more information.

Student wins $10,000 supercomputer, shares with fellow TU students

While attending the SC18 supercomputing conference in Austin, Texas, November 15-21, 2018, sophomore computer science major Matthew Walker got quite a surprise: A Caltech international supercomputer director told him that his work had been selected for a $10,000 virtual-reality application that was displayed at the conference.

The software, called iSec, is designed to simulate the experience of being in a secure environment, such as a government or military installation. The software includes realistic features such as simulated security cameras and alarms, as well as the ability to interact with other users in the virtual environment.

Additionally, the program includes hands-on projects and case studies that allow students to apply what they've learned to real-world situations. The program also offers opportunities for students to participate in research projects and internships, as well as to attend conferences and professional development events.

Darwin Year celebrations at TU

The Department of Biological and Geological Sciences honored several key events for the public this spring in honor of Charles Darwin's 200th birthday and the 150th anniversary of the publication of his book, "On the Origin of Species.

Among the events was a symposium on "Darwin and the Sciences," which featured talks by experts in various fields. The symposium was followed by a reception, where attendees had the opportunity to engage with the speakers and other attendees.

Another event was a lecture series on "Darwin's Theory and the Evolution of Human Populations," which was held in the evening. The lecture series featured talks by experts in anthropology, biology, and geology.

The university also held a "Darwin Day" celebration, which included a screening of the documentary "Darwin: The Voyage," which tells the story of Darwin's historic trip around the world on the HMS Beagle.

In addition to the public events, the Department of Biological and Geological Sciences hosted a "Darwin Day" workshop, which focused on "Darwin and the Sciences." The workshop included talks by experts in various fields, as well as a panel discussion on the impact of Darwin's work on today's scientific research.

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Darwin Day celebrations at TU

Darwin Year celebrations at TU

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Darwin Year celebrations at TU
Football Stomp tests students’ skills and creativity

One team designed and built a complex mechanical device with a simple design. "We just used a log, a big, a stick, and an old fire hydrant," commented "the other team". The objective was to build a device that would launch a small, fist-sized football the farthest, powered only by a downward stomping motion with one leg.

Tipton said. "Students had used their creativity and problem-solving skills to come up with innovative solutions. The warm, but noisy, environment provided the perfect setting for the competition.

The day of the football stomp was chilly, with a strong north wind blowing. The teams were distributed across the football field, each with their log and stick. Some teams used the log as a lever, while others used it as a seesaw.

"We spent $10 on the stick because we couldn’t find a good one," said one team member. "We figured a simple design would work best. We were right."

"Everything else we got for free. Our only tool was a chainsaw," said another team member. "Our log was strong enough to support the entire weight of the device.

"This requires a combination of creativity, ingenuity, engineering solutions, and teamwork," said Tipton. "Seeing all the other ideas on the day of the competition was exciting. We were both impressed and a little intimidated by the creativity of the other teams.

"We were lucky to have students who could think independently and come up with unique solutions. The competition was a great opportunity for students to see how their ideas can be applied in real-world situations.

"This is one of the ways we learn about creativity, innovation, and problem-solving skills. It’s a fun and rewarding way to apply what we have learned in the classroom.

EE student wins robotics contest

Quinna Woodard’s research bridges thousands of years of history to bring an ancient Chinese strategy game and an autonomous robot together to pit man against machine.

The competition was organized by the Society of American Television Engineering (SATE). It was held on campus at the University of Missouri-Columbia. The goal was to design and build an autonomous robot that could play Go, an ancient Chinese strategy game.

"The winner of the football stomp? It was a tie between the two teams that built the log and stick devices," said Tipton. "The team that built the stick and log device outright won. It was a close call, but the stick and log device was just slightly more efficient.

"Some students built really innovative machines," said Tipton. "But those don’t always win. It’s all about innovation and creativity. The warm, but noisy, environment provided the perfect setting for the competition.

"This is one of the ways we learn about creativity, innovation, and problem-solving skills. It’s a fun and rewarding way to apply what we have learned in the classroom.

"I consider it a blessing to be able to go in and give a few hours of my time to help," she said. "It’s a great way to give back and help students succeed.

"When they announced we won, we were pretty excited," said one team member. "We had worked hard over the past few weeks to design and build our device. We were proud of what we had accomplished.

"We went 100% into it because we couldn’t find a good one," said another team member. "Many of the other teams used expensive tools and equipment."
Groundbreaking research: Diagnosing disease with noninvasive procedures

Dr. Potter's research focuses on noninvasive procedures to diagnose disease. Potter’s research has evolved over the years, developing a method for measuring exhalations. Working with several chemistry undergraduate students, Potter began the arduous task of collecting breath samples to create the “Breathmeter,” a tunable diode laser that can detect small changes in breath composition.

Through collaborations with other researchers and funders, Potter turned his attention to developing breath analysis techniques that can be used to predict which babies would respond well to nitric oxide treatment and which would not. There was no other test available at the time that could predict this.

The diagnostic method finally received FDA approval, but the medical treatment for premature babies is now administered in a different way.

“Before becoming a professor of mechanical engineering, I was always fascinated by her odors,” Potter chuckled. “I knew there was some way to predict which babies would be helped by the NO and which would not be,” Potter said.

Each year, Potter’s research has evolved, developing a new technique to diagnose disease with noninvasive procedures. Potter has turned his attention to developing breath analysis techniques that can be used to predict which babies would respond well to nitric oxide treatment and which would not. There was no other test available at the time that could predict this.

The diagnostic method finally received FDA approval, but the medical treatment for premature babies is now administered in a different way.
CESE and iSCE computer seminars

Information security continues to be a top concern at every level of business. For the past 12 years, the Institute for Information Security (iSCE) has provided conferences, workshops and seminars to help companies protect their information and value-added software, hardware and other corporate assets.

"Information security is where your network design does what it is supposed to do and nothing more," Greer said. "Recently, there has been a "softer" side to information security. You're not just dealing with computers; you're dealing with corporate assets as well. You need to understand the people side of the computer security world. Great has teamed up with CESE to deliver the first in a series of continuing education classes set to begin in spring 2009.

There are three initial classes: "Information Assurance for Managers," "Information Security in Small Business" and "Conformance and Legal Issues with IT Security and Privacy." The curriculum will continue to expand, with additional classes to be added throughout the year. CESE and iSCE offer audio conferencing programs available that will enable students to experience the courses and seminars to meet the needs of individual clients.

Greer added that these continuing education classes are being introduced to deliver professional level continuing education programs for IT professionals from IT managers to the software developer level.

"The information industry has always been fast to roll out the softest side of what it is all about," Greer said. "We will be rolled to the computer to deliver virtual seminars and classes in the areas such as commodity and public speaking to enable the organization to grow the training and education. The problems we will focus on are in the security, especially security problems. We will be providing these seminars and classes from TU's high-quality security curricula and also are based on the cutting-edge research taking place as we speak.

CESE schedule of classes

Basic Petroleum Geology for the Non-Geologist

August 13-15, 2009 • Houston, Texas

Fundamentals of Engineering Exam Review Course

August 22 – October 17, 2009 • Tulsa, Oklahoma

September 10 – 12, 2009 • Houston, Texas

Pennwell Computer Exam Review Class

August 22 – October 17, 2009 • Tulsa, Oklahoma

October 10 – 15, 2009 • Houston, Texas

Engineering Exam Review Course

September 10 – 12, 2009 • Houston, Texas

Problem & Pitfalls in Joint Operating Agreements

October 20 – 22, 2009 • Houston, Texas

With International Petroleum & BioFuels Environmental Conference.

November 17–19, 2009 • Houston, Texas

Petroleum Engineering for Non-Engineers

September 19–21, 2009 • Tulsa, Oklahoma

PE Mechanical Engineering Exam Review Course

August 22 – October 17, 2009 • Tulsa, Oklahoma

Pennwell Computer Exam Review Class

August 22 – October 17, 2009 • Tulsa, Oklahoma

October 10 – 15, 2009 • Houston, Texas

Electrical Engineering Exam Review Class

September 10 – 12, 2009 • Houston, Texas

Class Notes

1990s

James Crissle (BSME '99) is a project engineer with the Baker Oil Tools division of Baker Hughes Inc. in Houston. For the past 15 years, James worked in the industry in Southern Michigan. He currently lives in Bloomfield. 

Brian Mullinder, BSEE '99, was featured in the October issue of Field, the newsletter of humanities resources specialists at the University. He will present the article, "Schlumberger: A Model for Success." Mark Ritter is president of aXel and is a partner in the law firm of Thomas Ritter Company.

2000s

Derrick Bonds, BSEE '03 and Amy Omalley, BSEE '03 celebrated the births of their babies, Alex, on April 29, 2009, Derrick is a graduate engineering manager and Amy is a project engineer at Thomas Ritter Company.

Lee A. Keeling

Lee A. Keeling (BSME '87) is a managing director at McKee & Co. Consulting in Houston. He has served as corporate vice president of Baker Oil Tools and Baker Hughes. In 2004, he was appointed as the president and chief operating officer of Baker Oil Tools. He currently serves on Baker’s board of directors and is a member of the Baker board of directors. He is a member of the American Petroleum Institute and the Society of Petroleum Engineers. He also is a member of the American Chemical Society.

Carrie L. Kirk

Carrie L. Kirk (BS '89) has built a career of being a running entrepreneur while learning IT. She has a passion for engineering, mechanical engineering, the sale and service positions within the chemical industry, Chemical Company and United Technologies, and Extol Corp. Carrie is a recipient of several significant achievement awards.

Evelyn Raynor Nienhuis has long been a loyal market of supporting TU computer science and electrical engineering programs which have contributed to her internal rate of return and internal rate of return.

Evelyn Raynor Nienhuis has long been a loyal market of supporting TU computer science and electrical engineering programs which have contributed to her internal rate of return and internal rate of return.
As a freshman petroleum engineering major from Chicago, Charles Mountford (BSPE '72 and MSPE '74) will never forget the day when Jim Brill, petroleum engineering professor emeritus, told him he had received a TU scholarship from Atlantic Richfield. “I was just thrilled to receive the scholarship,” said Mountford, a senior reservoir engineer with ONEOK Field Services. He had followed Brill’s advice to join the honors program and the Society for Petroleum Engineers (SPE) student chapter, both of which helped him receive a scholarship and advance his career. “He helped me connect engineering fundamentals with practical field experiences, and taught me many managerial and organizational skills I’m still using today.”

More than 30 years later, Mountford honored his faculty mentor by becoming the first alumnus to contribute to the James P. Brill Endowed Presidential Scholarship Challenge. Mountford’s gift is one of the many that have poured in since the Brill Scholarship Challenge was announced a little over a year ago. Pledges from TU alumni and friends have grown the endowment to more than $600,000, with a goal of $3 million.

During his more than 40 years at TU, Brill ran the undergraduate honors petroleum engineering program, recruited and advised incoming freshmen, taught undergraduate and graduate courses and oversaw multiphase fluid flow research.

His networking skills also led to an unforgettable field trip for Mountford. As faculty advisor for the student chapter of SPE, Brill arranged a trip to Phillips Petroleum in Bartlesville. One phone call landed the students a front row seat to one of the largest oil and gas discoveries in the world. “Phillips had just discovered a North Sea field that shot them to international prominence,” Mountford said. “The engineers showed us some of the seismic data which led to the discovery. Then they shared with us some of the challenges involved in drilling in that particular area – all before it was widely publicized!”

Now Brill wants to instill a love of petroleum engineering in a new generation of students. “As a small, personal, prestigious university, we have an opportunity to have an enormous impact on the petroleum industry. I want the industry’s future leaders to continue to come from TU,” Brill said.

To that end, he has written letters, made phone calls and met with former students to increase awareness of the financial challenges facing many gifted students who are interested in the petroleum industry. “His enthusiasm is contagious,” Mountford said. “I was inspired by what Dr. Brill and TU did for me, and I wanted to give something back through this scholarship.”

For more information about the Brill Scholarship Challenge, contact Miranda Smith, director of development for the College of Engineering and Natural Sciences, at miranda-smith@utulsa.edu, or at (918) 631-3287.

Special Thanks to the Engineering and Natural Sciences Annual Fund Challengers

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