TU alumni connect with college in unique ways

Stories throughout this issue feature alumni who have used their TU connection to launch industry-changing and life-changing initiatives:

• New drilling frontiers developed by TU alumni, faculty and students (p. 11)
• A successful science education outreach program that uses microscopes, TU researchers and some truly ugly bugs (p. 3)
• TU disability assistance programs that have opened up engineering professions and educational passions (p. 10)
• Professional expertise and lifelong inspiration drawn from one of the college’s most loved and admired educators, Dr. Kermit Brown (p. 4–5)

These and other alumni stories capture the spirit of mutual support that has distinguished the College of Engineering and Natural Sciences and has led to its more than 80 years of excellence.

Roger Jarvis (BSPE ‘76)
Entrepreneur Roger Jarvis has an exploration track record that is the envy of the energy industry. In 2001, Ernst & Young named Jarvis its “Entrepreneur of the Year” for his three successful start-ups to that point. In May of 2001, Worth named him as one of the nation’s top 50 public CEOs while running Spinnaker Exploration. Graduating from TU in 1976 with a petroleum engineering degree, Jarvis received numerous job offers and joined Amoco’s Denver division. He received great experience and exposure early in his career because the Overthrust Belt was in its infancy and activity at a cyclic peak. At 25, Jarvis struck out on his own, co-founding the first of four successful oil and gas start-ups. (Continued on p. 2)

Indurani Dayal Meshri, In Memoriam (Ph.D. Geosciences ‘81)
A pioneering, award-winning woman in her field, Dr. Indu Meshri was a Tulsa community leader and distinguished geoscientist whose contributions to her community and her profession have strengthened both in a profound and lasting way. Indu Meshri started her research career at the University of Idaho in the Geology Department on carbon dating, followed by research work on DNA at Cornell University. She earned her doctoral degree in geochemistry from The University of Tulsa Department of Geosciences in 1981. She was the second woman to receive her Ph.D. degree from the department — a legacy she carried on in her mentorship and encouragement of female scientists around the world. She had a long and productive research career at Amoco Research Center in Tulsa, serving 22 years as a geochemist. (Continued on p. 2)

Jack Wahl (BSPE ’49)
Shortly after high school, Jack Wahl served in an infantry division in the European Theater of Operations (ETO) — France, Belgium, Germany and Austria — where he was wounded by mortar fire in France. At Landsberg, Germany, his unit captured a large concentration camp. The atrocities he saw there were the most disheartening scenes he has ever experienced. After Japan’s surrender, he promptly enrolled in the incoming TU petroleum engineering class of 1945. After graduating in 1949, he began working as a reservoir engineer for Atlantic Refining Co. in Dallas. He was then hired by the consulting firm, James A. Lewis Engineering, in 1952. The firm provided a wide range of oil and gas reservoir analyses, but its specialty was enhanced oil recovery by water injection. (Continued on p. 2)

It is an exciting season in the life of the College of Engineering and Natural Sciences, and the college is opening up new ways for alumni to become more involved.

• TU alumni can soon become part of the 2010 groundbreaking and construction phase of two new engineering buildings: J. Newton Rayzor Hall and Stephenson Hall.

These and other alumni stories capture the spirit of mutual support that has distinguished the College of Engineering and Natural Sciences and has led to its more than 80 years of excellence. Reconnect with your college today. Contact Miranda Smith, director of development for the College of Engineering and Natural Sciences, at miranda-smith@utulsa.edu, or (918) 631-3287 to find out how you can become involved in the college’s bright future.

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• Also to begin construction in 2010, Samson Plaza will provide a needed green space to interconnect Keplinger Hall, Rayzor Hall, Stephenson Hall and the Allen Chapman Activity Center.

• TUalumni.com has launched a new Web site, with more interactive features and networking opportunities for ENS graduates. It’s free, so sign up and start reconnecting.

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www.utulsa.edu/ens
MESSAGE FROM THE DEAN

Dear friends,

As I look back over the past year, I realize how fast everything can change in one’s life. A year ago I was feeling pretty good about everything, including my health. Then suddenly, in the blink of an eye it seems, I found myself at M.D. Anderson in the middle of an extended chemotherapy regimen and a medical trial with the outlook classed as indeterminate. In just a short time, I have learned more about medical science than I ever wanted to know. I have been poked, probed, stabbed, cut, drained, strained, scanned, drilled, chipped, biopsied, x-rayed, EKG-ed, echocardiogrammed and injected with what seemed like the contents of an entire chemical stockroom. At times, I think that I must surely glow in the dark. I heard a rumor that all 1,300 participants in the medical trial are collegiate deans because there are certain things that rats won’t do. I think that’s just some sort of urban legend though.

It’s ironic, but I spent a lifetime avoiding needles, and in just one day, I had nine of them jammed into my body. Talk about high anxiety! After a while though, my anxieties subsided. I started to look around, and I started to ask questions. I looked more closely at the sophisticated equipment that was being used to assess my situation; I began to consider the chemical sophistication of the tests and medications that were being administered; I developed an appreciation for the biochemistry that was being applied to the analysis of my blood and tissue samples, and I was highly impressed by the knowledge and competency of the people who were working on my case. How does this instrument work? What kinds of data are you collecting? What are the numbers and graphics on the screen telling you? What is the origin of Taxotere? Why is it so cold in here? Each question received a thoughtful and informed response.

I developed a deep appreciation for medical science, but I developed an even greater appreciation for the American educational system. I realized that decades of investment in higher education and research combined to produce the magnificent medical organization that was working to help me and others from across the nation and from around the world. It reconfirmed my faith in the value of our educational mission and convinced me that comparatively small investments in the education of our nation faces a number of problems that have the capacity to dominate. In just a short time, I have learned more about medical science than I ever wanted to know. I have been poked, probed, stabbed, cut, drained, strained, scanned, drilled, chipped, biopsied, x-rayed, EKG-ed, echocardiogrammed and injected with what seemed like the contents of an entire chemical stockroom. At times, I think that I must surely glow in the dark. I heard a rumor that all 1,300 participants in the medical trial are collegiate deans because there are certain things that rats won’t do. I think that’s just some sort of urban legend though.

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Sincerely,

Steven J. Bellovich
Dean of the College of Engineering and Natural Sciences
TU, OU announce medical education program in Tulsa

OU President David Boren said, “By pooling our resources and our excellent faculties in this area, we can develop a truly outstanding medical education for Tulsa and northeastern Oklahoma which can serve as an example for others across the nation.”

The partnership is a great fit for both institutions: TU has an established core of science education and research programs and OU has an established medical program in Tulsa focusing on residency training and the third and fourth years of clinical medical student education.

TU also has one of the strongest pre-med programs in the region with an acceptance rate well above the national average. Over the last eight years, TU students who have gone through the pre-med program have had a 78 percent acceptance rate into medical schools. That phenomenal statistic is due to a pre-med advising and reviewing system that mentors students from when they are high school recruits through their undergraduate and graduate careers.

“Our success boils down to an in-depth knowledge of the student, an open door policy and mentorship,” said Dick Reeder, chief health professions advisor, associate dean for academic affairs and biology professor.

The pre-med program is administered by the College of Engineering and Natural Sciences, but serves the entire TU campus. Maddy Edwards, a senior history major, said the pre-med program prepared her well for the MCAT, the standardized test used by medical school admissions boards. Edwards scored so well that she will be attending the University of Oklahoma College of Medicine in the fall.

“Another element of the pre-med program’s success is great leadership by the college’s administration.”

Reeder noted the pre-med program has become a “premier program” under the college’s leadership: “Dean [Steven] Bellovich allows pre-med advisors to travel and meet with medical schools to improve our curriculum and processes. His support has enhanced the program immensely.”

The four-year community medical education program is the latest collaboration between TU and OU. Two years ago, the two universities combined efforts to offer a Master of Health Sciences in Physician Assistant Studies through the OU School of Community Medicine. The universities also have a joint affiliation with the William K. Warren Foundation at the Laureate Institute for Brain Research along with ongoing research associations in the areas of immunology and cancer, informatics and the neurosciences.

OU President Steadman Upham.

In December 2009, The University of Tulsa and the University of Oklahoma announced their intention to establish a joint four-year community medical education program in Tulsa.

The state’s flagship private and public universities are creating the program to address Oklahoma’s poor health status, low health systems performance and physician shortage.

“The vision for this program is to produce physicians with a focus on community health, to address the social aspect of disease and wellness and to create equitable access to care for all Oklahomans,” said TU President Steadman Upham.

One of the state’s most successful science outreach programs started with a statistic: Studies show that if children have decided by the 5th grade that they don’t like science, they are unlikely to change their minds.

Paige Johnson (BS ’91, MS ’05), a research associate in the TU Department of Chemistry, founded the Ugly Bug Contest in 1997 when she was a scientist at Conoco in Ponca City and also president of the Oklahoma Microscopy Society (OMS). Johnson wanted to get more Oklahoma children involved with microscopes and excited about science, and decided to pique their curiosity through close-up looks at insects.

Her fellow OMS members were enthusiastic about the project, and together they advertised the program, accepted applications and hand-delivered microscopes to the winners. OMS has awarded 35 microscopes to date and estimates the program has reached about 50,000 Oklahoma students.

Participating schools select their own ugliest bug in classroom or school-wide contests and submit it to OMS. Then partner labs across the state use an electron microscope to photograph the entrants. The photographs are judged simply for “ugliness” by attendees at the annual OMS fall meeting, held in conjunction with the Oklahoma Academy of Sciences. Every school that participates gets an 8x10 electron micrograph of their bug and a poster of the winners.

“Many teachers make it a regular part of their fall curriculum and send us a bug every year,” Johnson said. “We are particularly gratified to have placed many microscopes into small rural schools. I have personally delivered the microscopes to many of these schools, where I am often welcomed with a full school assembly, including parents, to receive the microscope.”

Funding for the microscopes is provided by ConocoPhillips, OMS and other corporate sponsors. The electron microscopy labs at TU, University of Oklahoma, Oklahoma State University and ConocoPhillips contribute microscope and operator time to photographing the 85 bugs on average submitted to the contest each year.

The program has inspired at least three other microscopy societies to host their own ugly bug contests; and in 2007, the Oklahoma Ugly Bug Contest was part of the nature documentary, “The Beauty of Ugly,” featured on the BBC and PBS.

For more information about the Ugly Bug Contest, visit www.uglybug.org.

“Reaching Oklahoma’s next scientists one ugly bug at a time”

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In Memory of Dr. Kermit Brown

November 2, 1923 – December 10, 2009

By Mohan Kelkar, Williams Endowed Chair and Chairman of the Department of Petroleum Engineering

What I am about to write is in no way a comprehensive history of Professor Kermit Brown; however, I do want to let you know his invaluable contributions to the petroleum engineering (PE) program at TU.

Dr. Brown arrived on the TU campus in 1965 as an evaluator for ABET to rate TU’s petroleum engineering program. At that time, the department did not have a chairman, and Dr. E.T. Guerrero served as both dean and chair. Dr. Brown criticized TU in his report for not having the appropriate leadership in TU’s PE program.

When Dr. Guerrero read his comments, he asked Dr. Brown: “Why don’t you provide the leadership?”

Luckily for us, Dr. Brown arrived at TU in 1966 as chairman of the petroleum engineering program.

It is not an exaggeration to say that Dr. Brown’s arrival changed the PE department forever. He was a bold visionary and a risk taker. TU did not have a doctoral program in PE at that time, and he started one. He initiated a research model that is mimicked by many other universities today. He developed the idea of consortium, where oil companies contribute a small amount of money every year to the university, and TU faculty and students conduct research that is of interest to the industry.

This allowed TU faculty to be grounded in what industry wanted and reduced our reliance on government funding for research. At that time, it was a radical concept, and not a single petroleum engineering program in the United States had a consortium. Under his leadership, TU started its first research program — Tulsa University Drilling Research Projects — in 1966. Today, we have 13 different consortia and joint industry projects in various aspects of petroleum engineering, unique experimental facilities and the worldwide reputation of conducting applied research. We are indebted to Dr. Brown for this.

Without his vision, his industry connections and his forward thinking, TU never would have gotten this concept of consortium off the ground.

Dr. Brown was a great researcher: His Hagedorn-Brown vertical flow correlation is still used today, and the concept of nodal analysis, which he introduced in the 1980s, is required learning for any graduating student in petroleum engineering. But, his first love was always teaching. Just like many of you, I have seen his ability to teach a difficult subject in an easy-to-understand way.

However, he did most of his effective teaching outside the class. I have seen him spend an extraordinary amount of time with students explaining the concepts in his office. If a student did not do well in a test, he would ask the student to rework the problem for extra credit. He believed that if the student honestly made an effort and tried to understand the concepts by putting in a little more work, the student would become a better engineer. He never worried about grades and teaching lessons to the students; he worried about them learning the concepts.

Even after he moved back to Tulsa from Texas in 2001, the first thing he did was to come to TU and ask me if he could teach a class here. Who would refuse that offer, especially when he taught the course without being compensated? Even during fall 2008, when I asked him to teach a class on gas production engineering (which he had not taught before), he was in the office, working on his notes, reading new materials for the class and preparing his presentations. He cared deeply about the students and made sure they learned lessons to last a lifetime.

As I have traveled to many countries around the world and have met TU alumni, the most frequently asked question has always been, “How is Dr. Brown?”

We will surely miss his friendship, his counsel, his generosity, his optimistic attitude, and his ability to make the person next to him feel better.

“I knew and respected Dr. Brown for many years, and I am sure he will be missed by all of us. When I was giving SPE Distinguished Lecturer talks in the mid-80s in South America, many of their engineers told me that they had a complete collection of Dr. Brown’s very practical books in their offices and were using them quite often. May God bless his soul.”

— Sam Sarem, SPE Director, WNAR (BS ’54, MS ’56)

“I remember my college visitation trip to TU in the spring of 1975. Dr. Brown took time out from his busy day to not only sit and talk with me about petroleum engineering and TU, but took the time to give me the full tour of the North Campus. Needless to say, I am a proud graduate of The University of Tulsa, Class of 1979 with a BS in Petroleum Engineering. Now 30 years into my career, I still consider Dr. Brown’s classes as some of the most enjoyable time spent at TU. My thoughts and prayers go out to his family.”

— Jim Walcutt, EosCana Oil & Gas (USA) Inc. (BS ’79)
North Campus, consortia revolutionize research at TU

Kermit Brown gave the university a lasting legacy of research

In 1966, Kermit Brown took over a struggling petroleum engineering program in need of a vision. “When Kermit came to TU, there was no research money and only three faculty members,” said Jim Brill, professor emeritus of petroleum engineering. “The smartest move this university ever made was to bring Kermit on board.”

Where others saw a lack of resources, Brown saw opportunity. As chair of the Department of Petroleum Engineering, he immediately set into motion his network of industry contacts, raising money for scholarships with a twist — the scholarship required a summer internship with the sponsor company and a modest unrestricted grant to the department. This gave industry donors an added student recruitment value for every dollar they spent and gave Brown the means to attract the best and brightest students.

“He had a real passion and affection for the university and was constantly challenging himself to make it better,” said Mohan Kelkar, the Williams Endowed Chair in Petroleum Engineering and chair of the department. “Although he got his start at Texas A&M and University of Petroleum Engineering, he immediately set into motion his network of industry contacts, raising money for scholarships with a twist — the scholarship required a summer internship with the sponsor company and a modest unrestricted grant to the department. This gave industry donors an added student recruitment value for every dollar they spent and gave Brown the means to attract the best and brightest students. Brown then turned his attention to the recently donated facilities from Standard Oil Company of New Jersey, which is now the North Campus. From his experiences as a professor at the University of Texas, Brown knew the key to a successful petroleum program was research. And, with one of the world’s largest drilling research facilities, he knew TU had a distinct competitive advantage.

He formed the university’s first consortium, Tulsa University Drilling Research Projects (TUDRP), in 1966, which took a novel approach to the university-industry relationship. He asked oil companies to become members of TUDRP through an annual fee that would provide targeted research data for consortium members.

Valuable research required talented faculty and graduate students, and Brown attracted both.

“I accepted the teaching job earlier than I had anticipated because I didn’t want to miss the opportunity to work with Kermit again,” said Brill, who joined the TU faculty in 1966 after working for Chevron and working with Brown as a doctoral student at the University of Texas. “He was a great judge of character and knew how to invest in the right people.”

He also knew how to invest in technology. Every time his search for internal funds ran dry, he sought industry sponsors to provide the best equipment for his faculty.

Brill remembers a perfect example of Brown’s trademark ingenuity. In 1975, Brill needed a $55,000 compressor for some high pressure research with two industry sponsors. He wanted the university to buy the equipment upfront and the industry sponsors to pay rent on it for two years to recover the cost.

Brown talked to TU President Paschal Twyman ahead of the budget request meeting that he was not able to attend. The meeting, the quickest one in Brill’s career, had the university’s head financial manager shaking his head and saying the university didn’t have the money for a compressor. Brill remembers Twyman looking at his financial manager and saying, “Well, find the money.” That compressor, which is now valued at $300,000, is still in use today on the North Campus and is an important part of three consortia: TU Heavy Oil Projects, TU Paraffin Deposition Projects and TU Fluid Flow Projects.

“What’s unique about Kermit is that he understood the balance of research and education. He had a vision, was an excellent researcher and an amazing teacher,” Kelkar said. “But what set him apart as an ideal faculty member was his combination of talents with his ability to connect with people.”

As the man who made North Campus a multi-million-dollar research resource, Kermit Brown has left the university a lasting legacy for which TU faculty, students and consortia members are forever grateful. ■

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“Their was a terrific educator and person, always down-to-earth and there to help the students, and he served on my thesis committee. It has been a long time since I was at TU, but I often think of Dr. Brown and his lectures as I pull his books off my office shelves for reference. I will remember him in my prayers.”

— Mike Miller (MS ’82)

For more memories of Dr. Brown, or to submit your own remembrances, visit www.utulsa.edu/pe

The most memorable thing about Dr. Brown was related to me by Dr. Billy Joe Livesay, my advisor and then head of TUDRP. He told me when Dr. Brown met someone on an airplane, he would strike up a conversation, exchange business cards and write that individual after the trip. I was led to believe that some of the funds he raised for the many scholarships the PE department gave at that time came about from these casual meetings — a lesson on networking long before it was called that. I now am teaching short courses for PetroSkills, and his teaching principles are something that I strive to emulate.

— Larry Wolfson (MS ’74)

I had Dr. Brown in the Production 1 course at The University of Tulsa in 1980. What a great teacher and what a great human being! I learned so much of the practical and fundamental lessons in petroleum engineering from Dr. Brown. After 29 years working in the oil and gas business, I still use his textbooks from time to time. When I read the news from Dr. Kelkar this morning; I looked at the textbooks of Dr. Brown on the bookshelf and realized that even though Dr. Brown is gone, his legacy remains. Thank you so much Dr. Brown. May God bless him for his good deeds.

— Thanh B. Tran (BS ’81)
Going Pro: Student-athletes prepare for engineering, science careers

A college athlete has a full-time job, with grueling practices, extensive travel and the pressure of performing in the spotlight. Athletes in the TU College of Engineering and Natural Sciences also thrive in one of the most challenging math and science curricula in the region. The following engineering and science majors have managed to achieve highly on the court and field as well as in the classroom.

Tayler Rigsby, a 10-time letterwinner in track from Tulsa, competes in the 800-, 1,000- and 1,500-meter events. A senior geosciences major with extensive research experience, she has been chosen for the TU Athletic Director's Honor Roll and C-USA All-Academic selection.

How does she do it all? "Lots. Lots of to-do lists," Rigsby said. “I have to plan my day by the minute.”

However, the won't take credit for it all. Her professors have been flexible for exams when she's traveling, and her coaches adjust her practice times if she has a lab that requires more time.

Even though spring is the busiest time for track, Rigsby participated in the 2010 TU Research Colloquium and has received a grant to extend her research project thanks to encouragement from Bryan Tapp, chair of the geosciences department.

“Dr. Tapp's mentorship is a major part of believing in myself academically," Rigsby said. “I have fans at the meets cheering me on, but it’s different in school. I need a coach there too, and he’s been that influence in my academic life.”

It's been an amazing ride for Hunter Christiansen, a starting midfielder on the men's soccer team and a junior mechanical engineering major from Denton, Texas. He has helped the Golden Hurricane win three Conference USA championships three years in a row. This season, the team made it to the Elite 8 and earned its place as one of the best collegiate soccer teams in the nation.

With the team's post-season success and extended travel schedule, his course load has been a serious challenge. Christiansen said he has felt the strain on his classes, but “not once have I regretted choosing my major.”

He chose mechanical engineering because he likes to know how everything works and why, and hopes to use it in aerospace engine design. He knows the struggle he has now in balancing soccer and school will pay off later.

"Future employers will notice that I have the ability to juggle multiple responsibilities and that I have the capability to work well in a team," Christiansen said. “Having the opportunity to represent my school on the playing field is an honor” and he hopes to represent TU just as well in his professional career.

It would have been easier to take a less demanding academic load, but Will Sanger, a junior geophysics major on the men's basketball team from Woodinville, Washington, knows the value of his degree.

“I wanted something career-specific and something that will help me travel,” Sanger said. “I hope to work in the consulting geophysics field and analyze construction projects around the world.”

As a Presidential Scholar, Sanger came to TU for its reputation as a small, private university with prestigious academic programs. He walked onto the men's basketball team his freshman year and feels pride in being part of the team's transformation during his time at TU.

Last summer, he participated in a Tulsa Undergraduate Research Challenge (TURC) project with Kumar Ramachandran, assistant professor of geosciences. He studied how to analyze geologic formations 25 km deep using 800,000 data points.

“Working in the geosciences lab, I can ask professors questions about structural geography and get a knowledgeable response from an expert who will take the time to explain it to me,” he said.

A rising tennis star from Quebec, Canada, and a sophomore biochemistry major, Caroline Beaulieu has a winning record on and off the court.

She won the Blue 3 Singles flight title at the Memphis Invitational in 2009 and was a perfect 5-0 in doubles during the dual season. She has a 3.63 GPA in biochemistry and plans to attend pharmacy school when she graduates.

“It requires a lot of time, organization and discipline to fit school and tennis in my schedule and perform well, but it is an awesome opportunity," she said.

She chose TU because she loved the campus, wanted a private school with an outstanding tennis program and felt welcomed by her teammates and classmates.

“Being a student-athlete in the College of Engineering and Natural Sciences requires a lot of time and important sacrifices, but I think it’s a really good opportunity," she said.

“I can get all the education I need to continue further on in my life in a great environment while having the chance to play my favorite sport and live great life experiences.”

These and many more student-athletes excel in the College of Engineering and Natural Sciences. If you would like to support their athletic and academic efforts, contact Miranda Smith at (918) 631-3287.
Student Briefs

Senior physics student Daryl Spencer presented a paper, “Substrate dependence of zinc oxide (ZnO) nanorod growth” at the American Physical Society meeting on March 19 in Portland, Oregon. Spencer’s presentation was part of the session on optoelectronic devices and applications. Additional authors of the paper were Amy Hor and Huan Liang, both master’s degree students in engineering physics. Parameswar Hari, associate professor of physics, was the faculty advisor on the project.

Zinc oxide nanorods are semiconductors that can be used in multiple applications, including solar cells, batteries and chemical sensors.

The TU team’s research extends progress made in controlled growth of ZnO nanorods and nanotubes. They investigated how to optimize the growth properties of ZnO nanorods and found that the type of substrate on which the nanorod is grown has a significant impact on its ultimate size.

Research Colloquium

The College of Engineering and Natural Sciences was well represented at the 13th annual University of Tulsa Student Research Colloquium, earning two Best Presentation awards, two second place awards and two third place awards as well as five honorable mentions.

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Chemical engineering undergraduates Raven Gunnells, Austyn Douglas and Jordan Warr won Best Presentation in the Community Service Symposium for their work with Engineers Without Borders.

Undergraduate biochemistry major Ben Quick won Best Presentation in the College Poster Session for his work entitled “Genetic Markers Associated with Post-Traumatic Stress Disorder.”

The Department of Biological Sciences stood out with award-winning research in Costa Rica by undergraduates Kristina Maynard and Todd Thomas, and pathology work on a unique plant virus by doctoral student Michelle Miller.

Mechanical engineering doctoral student Faisal Al-Mutahar served as a committee chair for the Research Colloquium and also won a second place award for his impressive work in erosion-corrosion prediction modeling.

New this year was the session track “Computer Security and Critical Infrastructure Protection,” where computer science students from the Institute for Information Security (SIS) talked on topics ranging from network security, touch screens and cyber attacks.

The annual research colloquium is conducted during the spring semester and organized by TU undergraduate and graduate students. The competition is open to all TU students and area high school students.

Bolivia trip a success for Engineers Without Borders

In November 2009, seven TU engineering students and six members of the Oklahoma East professional chapter of Engineers Without Borders (EWB) traveled to Bolivia to build life-saving infrastructure.

In two weeks, the EWB group started four eco-latrines and nearly completed two of them. Eco-latrines are composting toilets that keep the local water supply uncontaminated and provide needed fertilizer for farming. In the developing world, thousands of people suffer or die because they lack potable water and sanitation.

The EWB volunteers worked alongside residents of Cotani and taught the community how to use the eco-latrine design plans to continue the work once the EWB group left. Home to about 50 families, the farming village is situated high in the Andes mountains where there are few amenities and even fewer English speakers.

“We also had the challenge of working only with hand tools,” said Jordan Warr, a senior chemical engineering major. “It was an humbling experience to cut all the wood, mix cement, etc., by hand. It made us appreciate electricity!”

EWB students raised the necessary funds for the project in multiple ways. They contacted local engineering firms, sold Reaon’s grocery store coupon booklets, received discretionary funding from the dean of the College of Engineering and Natural Sciences, and even learned how to throw a fundraising gala. Engineers in Action also provided help in planning the trip and supplied the group with vital resources in Bolivia.

To find out how you can support service-learning activities at TU like Engineers Without Borders, contact Miranda Smith at miranda-smith@utulsa.edu, or (918) 631-3287.

TU computer programmers finish highest in Oklahoma in regional ACM competition

University of Tulsa students made up the highest-ranking team from Oklahoma in a prestigious regional computer programming competition, the IBM-sponsored Association for Computing Machinery (ACM) International Collegiate Programming Contest, held Nov. 6-7, 2009.

TU teams placed 6th and 21st out of 74 teams from universities in Oklahoma and Texas.

Three-member teams used their programming skills to solve complex, real-world problems under a grueling five-hour deadline.

TU Team 1, the highest-placed team from Oklahoma, solved four problems, while only three other teams were able to solve more problems. ACM estimates that tackling these problems is equivalent to completing a semester’s worth of computer programming in one afternoon.

Congratulations to TU computer programming competitors for their amazing work!

• Team 1: Logan Brooks, Bryce Cullane and Brendan Dalpe
• Team A: Ellery Newcomer, Alex Rulf and Stephen Macke.

Top photo: (second from the left) TU volunteers Kelsey Corrigan (BSPE ’09), chemical engineering sophomore Raven Gunnells and Keith Kostelnik (BSPE ’09) finished second in the ACM competition.

Bottom photo: Cotani villagers celebrate the completion of their eco-latrine.
Miska publishes SPE advanced drilling book

Stefan Miska, the Jonathan Detwiler Endowed Chair in Petroleum Engineering and executive director of the Tulsa University Drilling Research Project (TUDRP), served as editor and a contributing author of *Advanced Drilling and Well Technology*, a book published by the Society of Petroleum Engineers.

*Advanced Drilling and Well Technology* captures the vast developments that have occurred in well technology over the past several decades. The book explores applications related to many of the field-related challenges being faced today, such as deepwater and high-pressure/high-temperature wells, as well as emerging technologies like managed pressure drilling, expandable casing, coiled-tubing drilling and multilateral wells.

For more information about Miska’s new book, visit [http://store.spe.org](http://store.spe.org).

Physics achievements on and off the stage

Jerry McCoy, applied assistant professor of physics, explored the physics of dance in the January TU theatre production of “MOMENTUM: A Body in Motion.” McCoy had six different costumes, ranging from Sir Isaac Newton to wearing a tutu.

Jessica Vokoun, assistant professor of theatre at TU, created the original, highly entertaining play, which represented a significant collaboration between the TU theatre and physics departments.

Off the stage, McCoy was elected president of the Coalition for the Advancement of Science and Mathematics Education in Oklahoma (CASMEO). Representatives from education, government and business from across the state attended CASMEO’s March 25-26 conference, “Charting Our Course,” that established a multi-year CASMEO action plan.

Michael performs pioneering research on newly discovered undersea volcano

Peter Michael, the McMan Chair in Geosciences, was part of a group of marine geologists studying an active volcanic eruption in the South Pacific that took place 9,800 feet beneath the sea. The volcano, located more than 2,000 miles east of Sydney near the Fiji Islands, is in an extremely active region of volcanic activity.

The first chemical analyses of the volcanic rocks from the West Mata Volcano were performed on TU’s electron microprobe. Michael did not participate in the expedition but was one of a team of shore-based researchers who have active NSF-funded projects to study this undersea volcanic activity.

Michael presented his findings about the newly erupted volcanic rocks at the annual American Geophysical Union meeting in San Francisco Dec. 17, 2009 where the announcement about the discovery of the world’s deepest undersea erupting volcano took place.

The orange glow of magma in an eruptive area courtesy of NSF/NOAA

Indoor Air Program grows in reach and prestige

Richard Shaughnessy, director of the Indoor Air Program at TU, has been elected to a three-year term as president of the International Society of Indoor Air Quality and Climate. ISIAQ is the honor society of the world’s foremost experts on indoor air pollution. In 2008, Shaughnessy also was invited to join the ISIAQ Academy of Fellows.

In January, TU’s Indoor Air Program secured a subcontract to develop and test a method of measuring the ozone emission of in-duct electrically connected air cleaners. The project will obtain real-world data on ozone concentration increases due to use of these devices in field sites. TU will partner with the Missouri University of Science and Technology and the University of Texas at Austin on this study that seeks to measure and model the impact of in-duct air cleaners in California buildings.

Shenoi chosen to lead $2.7 million cyber job initiative

The Oklahoma Cyber Security Education Consortium (CSEC) has received $2.7 million from the National Science Foundation (NSF) to develop cyber security programs at two-year institutions in Oklahoma and seven neighboring states.

Sujeet Shenoi, the F .P. Walter Chair in computer science at TU, will lead the initiative and will oversee the training of faculty at technical schools and community colleges in Oklahoma, Kansas, Arkansas, Texas, Tennessee, Missouri, Louisiana and Colorado.

Shenoi has extensive experience in developing top federal cyber security programs, and established TU as one of the NSF’s Advanced Technological Education (ATE) Regional Centers of Academic Excellence. In 2004, Shenoi received an initial ATE grant, which positioned TU as the first training center in the country to emphasize digital forensics.

NASA engineer speaks at TU on a fracture method developed by Rybicki

Ronald Kruger, a senior research engineer at the National Institute of Aerospace, gave a talk at TU in October on “The Virtual Crack Closure Technique (VCCT): History, Approach and Applications.”

The technique is an extension of a method originally published by Edmund Rybicki, the Harry H. Rogers Professor of Mechanical Engineering at TU and mechanical engineering department chair. Rybicki published his method along with co-author M.F. Kanninen, while they were working at Battelle Columbus Labs in Ohio. Kruger has applied the VCCT technique to aerospace structure-related problems for over 18 years and is one of the leading experts on VCCT.

Currently, Kruger works at the NASA Langley Research Center in Langley, Virginia where he is affiliated with the Durability, Damage Tolerance and Reliability Branch. He has received two Best Paper awards from United States and Australian technical societies for his work on the VCCT and serves on two international committees working with the technique.

New geosciences faculty join the department

The Department of Geosciences welcomes two new faculty members; Jingyi Chen, the Decker Dawson Assistant Professor of Geophysics, and Mike Formolo, assistant professor.

Chen joined the geosciences faculty this spring and specializes in the characteristics of seismic wave propagation in two-phase or multi-phase media, seismic tomography and inversion.

Formolo, who will join the faculty in August, researches organic carbon and the mechanisms that control the limits on the microbial degradation of organic matter. He is currently a research scientist at the Max-Planck Institute for Marine Microbiology in Bremen, Germany.
CESE News and Events

Students from India travel to TU for CESE training

Continuing Engineering and Science Education (CESE) and Petroleum Engineering are working in collaboration with Pandit Deendayal Petroleum University (PDPU) in Gujarat, India, on a three-week undergraduate study/exchange program, called the Tulsa Undergraduate Petroleum Engineering Program. TU will host up to 60 PDPU students for this program, which is scheduled to be held June 7–25.

Mohan Kelkar, the Williams Endowed Chair in Petroleum Engineering, will lead the program along with other TU petroleum engineering faculty members. The students will reside on campus and will work with TU faculty in a combined lecture, lab and workshop-style program as well as have an opportunity for several field trips to nearby companies and research facilities.

Popular seminar leader celebrates 25 years teaching at CESE

For more than 25 years, Lewis Mosburg has been delighting students with his warm, conversational teaching style.

As a practicing attorney, he injects practicality into his petroleum land practices seminars. But as someone who put himself through college as a magician, he knows how to grab attention through unconventional means.

“It’s about when I introduce Ogden to get their attention and lighten the mood.”

Ogden, Mosburg’s invisible sheepdog sidekick, is one of many unconventional teaching tools he uses for his seminars on Fundamentals of Titles, Leases & Contracts; Problems & Pitfalls in Joint Operating Agreements; and Advanced Concepts of Titles, Leases & Contracts.

“I’ve seen lots of oil and gas cycles, and I want to teach people how to weather the good times as well as the bad.”

TU’s Continuing Engineering & Science Education’s strong suit has been in cross-discipline training programs. When CESE leaders had the opportunity to include Mosburg, an industry expert and successful energy lawyer, on their team, they jumped at the chance.

“He’s taken what seems to be a dry topic and turned it into a fun experience for everyone,” said Pat Hall, associate dean of CESE, who recruited Mosburg in 1984 to work for TU. “His enthusiasm is contagious, and the joy he has in his work shines through all he does.”

IPEC Conference to be held August 31–Sept. 2 in San Antonio


A three-day conference attended by professionals in environmental issues and solutions in exploration, production, refining and distribution of petroleum and biofuels.

This conference brings together professionals from industry and academia to deliver insight into environmental issues affecting the oil and gas industry worldwide. The conference sessions present the newest research, products and services to help companies make better decisions in changing environments.

New class teaches important skills in interpreting crash data

CESE is one of the only programs in the nation offering this type of event data recorder training

This spring, an overwhelming response to the newest class offered by CESE has confirmed Jeremy Daily’s prediction.

“There’s a strong need in law enforcement and civil litigation for event data recorder [EDR] training,” said Daily, a TU assistant professor of mechanical engineering who advocated for the new class. “There’s no opportunity for EDR education, and so there was a need we tried to fill.”

And fill it did. In under a month, the EDR class had registered 30 participants from 13 states as far away as California and Massachusetts. Although the five-day seminar was held in Tulsa, only one participant was from Oklahoma.

Why the high interest? Most commercial vehicles in use today have some form of event data recording capability built into the engine control module. EDRs monitor and record data on the vehicle, and often are capable of providing information about a vehicle before, during and after a major collision. However, heavy truck manufacturers no longer offer training in how to read EDRs, and professionals in law enforcement and crash reconstruction were left without a guidebook.

“We had a bunch of guys with their own pools of knowledge, and we wanted them to be swimming in the ocean,” said Ron Baade, a CESE instructor for the course and senior analyst for Commonwealth Transportation Consultants of Pennsylvania.

Understanding how to access, recover and interpret EDR data is important to engineers and police involved in collision reconstruction, as well as fleet managers, attorneys, insurance companies and researchers seeking to prevent future accidents.

Baade, along with fellow instructor William Messerschmidt, a principal analyst at Messerschmidt Safety Consulting from Birmingham, Alabama, have experienced an overwhelmingly positive response to the class. Plans are already under way for a second class in the fall.

The EDR class is part of a growing offering of CESE programs that include computer security through TU’s Institute for Information Security (iSec).

For more information about EDR and other practical application courses, visit www.cese.utulsa.edu.
The following stories highlight the unique ways in which alumni have reconnected with the College of Engineering and Natural Sciences. Although their journeys differ, the theme is the same: their time at TU changed their lives. In return, they continue to inspire others and enjoy the fellowship that comes from being a proud graduate of The University of Tulsa.

Renewing the TU Experience

Although Mark (BSME ’79, MBA ’85) and Terri (BS ’79) Abbott attended TU on scholarships and were known for their academic achievement, they still knew how to get out of the library and have some fun. The couple met on the field as coach and pitcher for the intramural women’s softball team.

“We were involved in campus activities and good-natured rivalries,” Mark said. “We even won the softball league both years.”

“I thought he was so cute,” said Terri. “We had so much fun hanging out on the U with our friends.”

About a year following graduation, the couple married and began building their family and careers in Oklahoma City. Like many recent graduates, they lost contact with the university for a few years.

In 1981, Mark got a job with Phillips Petroleum, and the family moved to Bartlesville. Terri taught English at Central Middle School in Bartlesville, while Mark worked his way up to supervisor of engineering design at ConocoPhillips.

Now within driving distance of TU, they began to go to Golden Hurricane sporting events, taking their kids to football games and tailgating. This connection to their alma mater inspired them to think about donating to academics at TU.

“We got involved with the giving side of things, but never really thought about donating up until then,” Mark said. “Phillips had a matching program that encouraged us to give more and double our impact.”

In 2003, their daughter, Lauren Abbott (BA ’07), carried on the family legacy by enrolling at TU. Lauren was the recipient of the merit-based Bailey Presidential Scholarship, which provided her with full tuition, room and board.

“The Presidential Scholarship allowed me to go to college without racking up a lot of debt,” Lauren said. “It’s amazing that people think so highly of TU that they wanted someone like me to be able to go there as well.”

Inspired by Lauren’s experience at TU and the scholarships they received as students, the Abbotts decided to create their own scholarship at TU, the Abbott Presidential Scholarship. Through fixed-interval donations, combined with ConocoPhillips’ matching gift program, the Abbotts will make a lasting difference in TU’s recruiting efforts of the best and brightest undergraduates.

Mark is also active in a volunteer capacity at TU. As the current chairman of the Mechanical Engineering Advisory Board and a ConocoPhillips Spirit Scholars mentor, his contributions to TU are powerful examples of giving back.

“I would encourage alumni to find their own way to reconnect through volunteering, helping out or becoming more active in alumni associations,” Mark said. “It doesn’t have to be a lot of activities, just something you enjoy.”

Advocate for change

Going from high school valedictorian to college dropout hadn’t been part of Jillian Coghill’s (BSME ’05) master plan for her life.

Crohn’s disease, a chronic condition that affects the gastrointestinal system, had left her physically and emotionally exhausted after her first semester at a public university. The gastrointestinal side effects wreaked havoc on her scholastic performance and social life.

“I had to share the dorm bathroom with 40 other girls — no privacy,” Coghill said. “There was a message board near the bathroom where people would leave nasty messages about me and my condition. I was mortified. I would force myself to wait until the middle of the night to go, and anyone with Crohn’s knows how hard that is to do.”

The public school’s administration was slow to recognize her physical needs and refused to grant her special academic protection as a disabled student.

“I was stressed out, sick, isolated, friendless. And I gave up,” she said.

After meeting her husband and moving to Tulsa a few years later, she convinced her to try college again, this time at The University of Tulsa.

“TU is smaller. I was able to meet more people and be in a comfortable environment,” she said. “I could talk to professors, and the administration cared about me.”

She met with Ruby Wile, assistant director of the TU Center for Student Academic Support, who quickly put Coghill on a customized program that lifted penalties due to sick days and gave her access to bathrooms during tests.

“As my stress level went down, my intestinal problems did too. Even my husband saw such a change,” she said. “My grades went up, and I loved the subject matter. It was a whole new me.”

Now Coghill is a successful application engineer at Baker Hughes, with experience on offshore drilling rigs and international energy projects. She is active with Crohn’sAdvocate™, a program to connect, educate and empower those suffering from the disease.

She also advocates for universities to adopt practices like TU’s that help students with disabilities reach their potential. An avid sports fan, she lives just north of campus and regularly walks over to cheer on the Golden Hurricane or visit with her former engineering professors.

“Without the support I got at TU, I don’t know if I would have made it to graduation and have the career I have today,” she said. “I love this place. It’s like family.”
New drilling frontier in Tulsa

An innovative drilling technique developed by Kenneth Oglesby (BSPE ’76, MSPE ’77) is poised to revolutionize the drilling process for oil and gas, deep geothermal, shallow ground source heat pump, mining, trenching and other industrial applications.

Tulsa-based Impact Technologies, which Oglesby founded, received a $2.4 million grant from the U.S. Department of Energy for further development of his FLASH ASF™ drilling technology. His micro-hole drilling technique promises to drop the cost of drilling or boring a well by up to 75 percent.

“It’s a new frontier being developed right here in Tulsa that combines many of TU’s research strengths,” Oglesby said.

His micro-hole drilling process uses abrasive particles to bore through the Earth’s hardest rock with no rotation, no grinding and up to 20 times faster than traditional boring methods. It can also be scaled down to one-inch diameters using small trailer-mounted rigs that are only six- to eight-feet-tall. All that adds up to an efficient cutting system with a smaller ecological (and economical) footprint.

“Ken’s original ideas have resulted in patents rights which he gave to TU and which we used to earn a $300,000 grant from OCAST [Oklahoma Center for the Advancement of Science and Technology],” said Shoham, the Floyd M. Stevenson Distinguished Presidential Chair in Petroleum Engineering. Oglesby, Shoham and Kelkar worked together on the OCAST project, Novel Gas-Liquid-Solid Separator in Drilling/Production.

Oglesby attributes his success to a multidisciplinary approach he learned from some of the college’s all-star professors: Jim Brill, Kermit Brown, Dale Beggs and J.J. Azar in petroleum engineering; and Marvin Kemp and Gloria Meadors in chemistry.

Currently he works with a new lineup among the college’s award-winning researchers: Mohan Kelkar and Ovadia Shoham in petroleum engineering; Ram Mohan and Steve Tipton in mechanical engineering, and Kaveh Ashenayi in electrical engineering.

“Ken’s original ideas have resulted in patents rights which he gave to TU and which we used to earn a $300,000 grant from OCAST [Oklahoma Center for the Advancement of Science and Technology],” said Shoham, the Floyd M. Stevenson Distinguished Presidential Chair in Petroleum Engineering. Oglesby, Shoham and Kelkar worked together on the OCAST project, Novel Gas-Liquid-Solid Separator in Drilling/Production.

“Ken has been there from the very beginning, working with our petroleum engineering master’s students and serving on their theses committees,” said Mohan, professor of mechanical engineering. “This is a real collaboration with industry, academia and government. And none of it would have been possible without him.”

Oglesby has been an active supporter of TU initiatives and has invested in TU, the College of Engineering and Natural Sciences, and in petroleum engineering scholarship funding over many years. He has also provided leadership for the petroleum engineering department’s advisory board and served as a mentor to undergraduate and graduate students.

“I went to TU on a full scholarship many years ago. Otherwise I wouldn’t have gone to college,” he said. “I’ve seen the TU difference in educational quality. I think it is important to just give back to TU.”

CLASS NOTES

1960s

Bob Marshak (BS applied math ’66) attended his first Tulsa football game in over 40 years with his son-in-law, Ashley Dowling, in Fayetteville, Ark. Bob retired from the U.S. Air Force in 1988, after being commissioned from the TU ROTC on his graduation day in 1966. He has been an adjunct professor of mathematics at Mesa Community College for the past 18 years. He lives in Tempe, Ariz.

1970s

Michael Wortham (BSChE ’78) has joined ConocoPhillips as the projects vice president for Indonesia. Michael and his wife, Beverly, relocated to Jakarta, Indonesia, in November 2008, after his retirement from British Petroleum (BP) in Alaska in October 2006.

1980s

Allen Sinor (BSPE ’82) was recently promoted to vice president, drill bit systems, for Baker Hughes’ Hughes Christensen product line. He previously worked as vice president of technology, director of applications engineering and director of drilling research. Prior to joining Baker Hughes, Sinor spent 14 years at Amoco’s research center in Tulsa, where he focused on the disciplines of drilling mechanics and downhole tools. Notable accomplishments include building and staffing of the Baker Hughes Experimental Test facility (BETA), the industry’s only fully functional field research facility dedicated to cross-product-line testing and development. During his 26-year industry career, he has been granted 14 patents and authored 23 technical papers. He is the recipient of the 2010 SPE Drilling Engineering award, has been an SPE distinguished lecturer, served on numerous SPE, ASME and ADEE committees, and received numerous industry awards.

1990s

Cindy Adams Dickey (BSEE ’91) and her husband, Scott, welcomed a baby girl, Kristin Amelia Dickey, on April 11, 2009.

Eleanor Jennings (BS ’94, MS ’97 in biological science) is working in the Washington, D.C. area for URS Corporation, an international consultant firm specializing in contaminant remediation. Eleanor is a technical advisor for anaerobic remediation projects in the D.C. area, California, France and England.

Brian Habeck (MEN ’94) became the global improvement leader for the polyglycol, surfactants and fluids business with the Dow Chemical Company in Freeport, Texas.

Dominic Jones (BSCS ’97) was named the Federal Aviation Administration Flight Standards Service’s National Staff Employee of the Year for 2008. He also was named the Regional Staff Employee of the Year for his region. Dominic is an operations research analyst stationed in Salt Lake City, Utah. He received his Ph.D. degree from the University of Utah in May 2008.

How to submit class notes

Keep us informed. Tell us what you’ve been up to, if you’ve been promoted or honored, or simply say hello. To submit news to Class Notes:

1. E-mail: Dottie Smith, assistant to the dean, at dottie-smith@utulsa.edu
2. Mail: The College of Engineering and Natural Sciences, University of Tulsa, 800 S. Tucker Drive, Tulsa, OK 74104

Please note that Class Notes may be edited for space. Photos of alumni are welcome in digital or print format. If you would like your print photo returned, please enclose a self-addressed stamped envelope. We look forward to hearing from you!
Maj. Eric Jauquet (BSME ’97)
Capt. Nathan Garrett (current student), and TSGT Brian Turner represented TU while being deployed to Balad, Iraq, as part of Operation Iraqi Freedom. Eric brought the TU flag with him to fly along in a combat mission over Iraq.

Timothy Martin (BSME ’99) and Natalie Titwell Martin (BSBA ’00) welcomed their first child, Emma Rose, on February 12, 2009. Tim is an engineer for Turner Universal, and Natalie is a singer and songwriter. Tim, Natalie and Emma call Nashville home.

Derick Cook (BS applied math ’99) and Dana Ricks Cook (BSBA ’95) welcomed a new son, Luke Alexander, in June 2008. The family resides in Oklahoma City.


2000s
Earl Chandler (BSEE ’00) and his wife, Penni, welcomed son, Bradyn Alexander, on November 30, 2009.

Maria Wegner-Johnson (BS environmental policy ’01) dedicated a new boat for the women’s rowing team during halftime of the Dec. 19 men’s basketball game against Chicago State. The former rowing team member and geosciences graduate is married to Kevin Johnson, (BS ’03) who was a Golden Hurricane basketball player.

Jennifer Daugherty Hirt (BS biochemistry ’04) was one of 15 students selected to spend the summer working with scientists at NASA Johnson Space Center in Houston through a National Space Biomedical Research Institute internship. While there, Jennifer evaluated the amount of Vitamin D necessary to protect an astronaut’s bone health during long-duration spaceflights. The research also benefits all people who suffer from bone diseases. Jennifer is a graduate student at the University of Kansas Medical Center studying dietetics and nutrition.

Cody Wann (BSEE ’04) and Katie Handelman Wann (BA ’03) welcomed their first daughter, Madalynn May Wann, on February 6, 2008.

Zoe Hanson (BS biology ’04) married Nick Hoopner on May 30, 2009 in Chicago. Zoe received her doctorate in pharmacology from the University of Illinois at Chicago in December 2009.

Neil Crittenden (BS biochemistry ’05) married Sunita Rani Chahar on July 5, 2008 in Houston, Tex. Both Neil and Sunita are in medical school at the University of Oklahoma College of Medicine.

Jon Wood (BS biology ’08) founded Hurricane K-9 Waste Removal during his time at TU and won a Dorm-Based Business Award from StartupNation in the “blockers and tacklers” category. Jon has grown H-K9 over the past year and was featured in the Tulsa World on Thanksgiving Day and nominated for a Global Student Entrepreneurial Award.

Cody Wann (BSEE ’04) and Katie Handelman Wann (BA ’03) welcomed their first daughter, Madalynn May Wann, on February 6, 2008.