

COMMUNIQUÉ

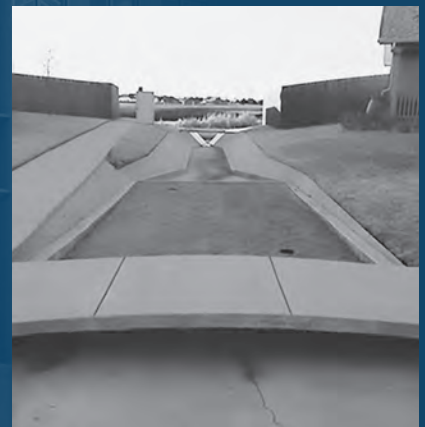
Summer 2017

A newsletter for alumni and friends of the
School of Civil Engineering and Environmental Science
at the University of Oklahoma

pg. 2



pg. 13



— The —
UNIVERSITY
— of —
OKLAHOMA

Gallogly College of Engineering

School of Civil Engineering
and Environmental Science

pg. 18



From the Director

Summer Greetings, Alumni and Friends!

It is hard to believe, but this summer marks the end of my four-year term as director of CEES; with the support and encouragement of my colleagues, I agreed to be considered for a second term, which Dean Landers accepted. As I look back on the past four years, I am very proud of the student and faculty accomplishments that have been achieved in CEES, many of which have been chronicled in the pages of the *Communiqué*. And this issue is no exception. On these pages, you will read about:

- Our newest faculty member, Dr. Jason Vogel, who was selected to serve as the second director of the Oklahoma Water Survey. CEES will serve as his academic home, where he will contribute to our teaching and research mission.
- An impressive array of awards received by our faculty and students. Some of the highlights include three national awards received by Drs. Nairn, Sabatini and Hatami, and a prestigious GCoE graduate fellowship received by doctoral students Tommy Bounds and Trevor Looney.
- Undergraduate enrollment trends in CEES. Explosive student and research growth is creating some pinch points, particularly in the labs, which is most acutely felt at Fears. Thus, expansion of it is our No. 1 capital improvement need.
- A recap of our initial professional development/alumni event. Feedback has been quite positive, so plans are to make this an annual event.
- Two initiatives to start online M.S. degree programs are underway. Efforts to offer online degrees in hydrology/water security and civil engineering. If all goes according to plan, these both will be launched in fall 2018.
- Saying goodbye to two long-serving staff members. Audre Carter and Susan Williams will retire in December, and they will be very hard to replace.
- The career paths of three alumni from three different generations. The diversity of their professions markedly displays the breadth of opportunities that a CEES degree provides.

Regarding the latter, I know that based on previous feedback, you really enjoy reading about the personal paths and professional accomplishments of past graduates, so we try to profile a diverse set of alumni in each issue – diverse in terms of graduation era and career path. As I read through the three profiles for this issue, I had a flashback to a seminar I had in graduate school titled “Civil Engineering, The Last Great Liberal Arts Degree.” (My slightly modified version of the talk would include all CEES majors.)



Historically, a liberal arts degree is viewed as one providing graduates with the broad-based education necessary to be informed and active in civic life; its foundation is in classical subjects, such as rhetoric, logic and literature. The basic tenet of this seminar was that, as modern society has become more complex and technically oriented, one needs a degree that combines breadth in both technical skills and general education, yet provides enough depth to prepare oneself for a successful career in a wide array of fields. CEES degrees do exactly this, as is evidenced by the alumni profiles found in this issue.

While these profiles are one of the highlights of the issue for me, we unfortunately only have space for two or three in each issue. I know there are many worthy and interesting stories to tell, so if you know of someone (including yourself) whom you think should be profiled in future issues of the *Communiqué*, please send an email to cees@ou.edu. I truly hope our inbox gets flooded!

Yes, CEES has seen remarkable growth and received many accolades, but I know there is much more that we can accomplish. So, as I embark on my second term as director of this great school, I look forward to working together with my colleagues to sustain the culture of excellence in all aspects of academic life – innovative research, high-quality education and student mentoring, and service to the public and our profession, while also maintaining the collegial environment that has been a hallmark of CEES for many decades. As you read about some of CEES's highlights in this and future newsletters, I hope you share in the sense of pride that we take in fulfilling our roles as faculty and staff members that help shape the minds of the next generation of CEES graduates.

Sincerely,

David Ross Boyd Professor
Austin Presidential Professor
Director, School of Civil Engineering
and Environmental Science

Inside Communiqué

2 School News

13 Research

18 Alumni News

21 Awards and Honors

24 Giving Update

CEES Administrative Team

Randall L. Kolar
Director

Gerald A. Miller
Associate Director

Kianoosh Hatami
David A. Sabatini
Jeffery S. Volz
Committee A

Mark A. Nanny
Undergraduate Studies

Amy B. Cerato
Graduate Studies

Audre L. Carter
Administrative Assistant

CEES Visiting Council

Kyle Arthur
Chesapeake Energy

K. Michelle Barnet, P.E.
ENERCON Services

Jim Benson, P.E.
Poe & Associates, Inc.

Jesse Berdis
John F. Kennedy Space Center

Bret Cabbiness, P.E.
Cabbiness Engineering LLC

Geoff Canty, Ph.D.
CC Environmental

Kenna Chapin, P.E.
Wallace Engineering

Ray Gomez, P.E.
Phillips & Bacon, Inc.

Michael Graves, P.E.
Garver

Geri Hart, P.E.
Tinker Air Force Base

Martin Hepp, P.E.
CEC Infrastructure Solutions

Stacy Loeffler, P.E.
BKL, Inc.

Nasir Marakah, P.E.
Midwest Engineering and
Testing Corp.

Bryan Mitchell, P.E.
CH2M Hill

M. Gene Phillips, P.E.
Wallace Engineering

Alan Soltani, Ph.D., P.E.
Olsson Associates

David Streb, P.E.
Poe & Associates, Inc.

Scott Sturtz, P.E.
City of Norman

Tim Tegeler, P.E.
Oklahoma Department of
Transportation

Rory Victor
ExxonMobil Development Co.

Connect With Us!

Facebook (OU Civil Engineering and
Environmental Science)

LinkedIn (University of Oklahoma
CEES Alumni and Friends)

Visit our blog at
cees.ou.edu/blog



Sooners Without Borders in the Dominican Republic

Last January, 10 Sooners Without Borders students spent much of their winter vacation working in the Dominican Republic. After a brief historical tour, one SWB group worked with Guanin Community Center to install a water-well to serve three villages, while a second group helped build a concrete block wall and set up tires for playground use at Guanin's Daycare Center. The center serves mostly Haitian immigrants who have moved into the Dominican Republic, but who are not eligible to receive government services. For many, the hot meal served at the daycare is the only meal that the children will receive each day. While there, the children also receive free education and health checkups from the medical clinic.

Most of the students and OU staff members - including Jim Chamberlain, Ph.D., OU WaTER Center co-director of education and outreach, and Lisa Morales, Gallogly College of Engineering executive director of diversity and inclusion, stayed with Dominican families on the outskirts of Santo Domingo. Chamberlain reported, "Here we learned how much the Dominicans enjoy dominos, dancing and loud music! Sunday is 'family day,' so each group of students spent time with their host family in a different way - sharing a nice meal or walking along the nearby seacoast. The students were also treated to a daylong beach excursion, which included a sailboat ride out to a pristine island in the Caribbean."

Sooners Without Borders is a service organization that encourages both engineering and non-engineering students to engage in domestic or international development work. The group plans on returning to the Dominican Republic again next year, as there is still more work to be done. Last year, in addition to their personal fundraising efforts, the team was supported by grants from the Gallogly College of Engineering dean's office. If you would like to help support SWB, please contact the OU Foundation at <https://giving.oufoundation.org/OnlineGivingWeb/Giving/OnlineGiving/devmain> and reference "SWB - International Trip."



Melody Metivier Jones cuts slots in the casing pipe to be used in the new water well.



Students and local helpers gather around the water well after completion. The well will serve water for three villages.



Lisa Morales and Aurelie Soulier help build a concrete block wall that will provide security to the center.

Concrete Canoe and Steel Bridge Teams Attend Regional Competition

The ASCE Mid-Continent Student Conference was held in Fayetteville at the University of Arkansas campus April 21-22. Four hundred and seventy students from 14 universities from around the region competed with the help of 30 judges and 50 volunteers.

The 2016-2017 Concrete Canoe Team was led by co-captains Kristen Hayden, senior architectural engineering major, and Rachel Wesson, junior civil engineering major. The team chose an ambitious and challenging theme that balanced both engineering and sustainability: "Eco Canoe". According to the ASCE National Concrete Canoe Rules and Regulations, all participating teams were required to include a specified percentage of aggregate that was compliant with ASTM C330, a specification that covers lightweight aggregate prepared by processing natural materials.

"The new rule was very challenging, as the options for materials were limited and did not perform well during the research and development phases of the project; they were heavy and not nearly as strong as aggregates used in the past. However, the team pressed on, and 'Eco Canoe' was only one of three compliant canoes at the conference.



The team is rightfully very proud of that accomplishment," exclaimed Hayden. Results of the concrete canoe competition are as follows.

Concrete Canoe Competition - 2nd Overall by 3.2 pts (out of 100 possible)

- 1st Final Product
- 4th Oral Presentation
- 5th Design Paper
- 3rd Race Points
- 1st Women's Endurance
- 2nd Women's Sprints
- 3rd Men's Endurance
- 5th Men's Sprints
- 6th Coed Sprints (4 person)

Led by co-captains Kristen Hayden and Rachel Wesson, Concrete Canoe Team members included the following:

- Lyndon Crouch
- Tyler Dewar
- Michelle Basham
- Griffin Daniels
- Casey Eoff
- Megan Gledermann
- Chloe Harwood
- Amelia Joly
- Drew Kay
- Durant Leung
- Heather Logan
- Luis Marin
- Santiago Mazuera
- Elizabeth Paul
- Marshall Rasmussen

- Luke Whitney
- Megan Zinn

The 2016-2017 Steel Bridge competition was also held at the ASCE Mid-Continent Conference in Fayetteville. The team was lead by captain Chase Angier, and it is only the third OU team in 15 years to successfully complete all phases of their competition. Said adviser Chris Ramseyer, "I am very proud of them and the effort they put into this competition." Results for the bridge competition are listed below; such progress bodes well for future OU teams.

Steel Bridge Competition - 5th Overall

- 5th Construction Speed
- 6th Lightness
- 8th Display
- 5th Stiffness
- 5th Economy
- 6th Efficiency

Steel Bridge Team members included:

- Trenton Alexander
- Richard Campos
- Connor Casey
- Mickaya Eisenbrandt
- Ousamane Ndure
- Antonia Simunovic
- Alex Sotomayor
- Rachel Wesson



Architectural and Civil Engineering Capstone Design Project

The 2017 capstone project for the architectural and civil engineering students involved design of the new university sports performance center, which also served as the project for the 2017 ASCE-AEI design competition. In particular, for the competition, students were challenged “to address the design, integration and construction issues that must be considered for the Texas Tech University Sports Performance Center, Lubbock, Texas.” The center will serve the university’s athletics department, coaches, staff and student-athletes as a state-of-the-art, indoor football practice facility and a venue for the track-and-field teams to train and compete, while providing amenities for all teams and community sporting events. A competition record of 21 teams registered for the 2017 competition, and while OU was not one of them (due to the timing of the competition vis-a-vis when capstone is offered), it did provide the students with the “feel” of a national competition and allowed them to compare their designs to what was presented at the national

AEI conference (see article in this issue about the conference).

The new, 185,000-square-foot facility will replace the old athletics training center and will sit on approximately 10 acres. The design of the facility and supporting infrastructure required a range of architectural and civil engineering disciplines, including: construction; geotechnical; building lighting and electrical systems; building mechanical systems; structures; transportation; and water resources/drainage. Each of the nine teams consisted of seven students, with each student covering one of these design aspects as well as working together on overall aspects for the project, including integration, a community shelter and sustainability requirements.

With a target budget of \$48 million, the building portion of the project included an 80-yard artificial turf field and a 200-meter indoor, banked track with permanent seating for 750



spectators, with the ability to expand capacity to nearly 2,000 using portable bleachers. The center also housed a strength and conditioning center, equipment facilities, and a sports medicine and nutrition center.

The project culminated in a presentation by each team to visiting design professionals and the CEES faculty. One industry professional noted that “this was impressive; to take a very complex project and integrate all the different disciplines bodes well for the futures of these students.” “Wow, I’d like to hire all these students,” said another. And the consensus of the faculty was well-voiced as “the students did a fantastic job, pulling together many aspects of a large project in just one semester’s time.”

CEES Studying Online Degrees in Hydrology and Civil Engineering

Is an online M.S. program from CEES coming your way? Very possibly! It is interesting how this educational initiative has evolved. A few years ago, about the time some faculty members were questioning whether we should delve into the online market because of the rapidly changing landscape of higher education, the department received an unsolicited call from a major higher education marketing company in Chicago, asking if we would be interested in developing an online M.S. program in civil engineering. Their preliminary study indicated that, because of OU’s brand combined with a lack of regional competition, an online M.S. program could be quite successful. Simultaneously, the provost’s office at OU was building a strong internal support system for developing online content. Finally, the Gallogly College of Engineering began offering its first fully online M.S. (in data science and analytics) during this time frame, which has proven to be

very successful. Spurred on by these developments, this past year CEES conducted a more detailed marketing study with Elsemere Education, a company under contract with OU to provide recruiting, marketing and retention services for its online programs (all colleges). Elsemere’s report confirmed the results of the initial study, i.e., the market and timing are right for creating such a program. Thus, CEES created two task forces, one for civil engineering headed by associate professor Jeffery Volz, and one for hydrology/water security headed by professor Yang Hong, to prepare white papers that address implementation details and resources needed. A final “go/no go” decision is forthcoming by September 2017. If one or both are approved to proceed, then the first courses would be offered in fall 2018. As friends and alums of CEES, we would appreciate any feedback or input on the proposed online degrees; simply email us at cees@ou.edu.

Environmental Capstone Class Evaluates Reservoirs for City of Altus

The spring 2017 environmental capstone class focused on developing rehabilitation plans for the City of Altus' reservoirs. Student teams were charged with evaluating environmental, hydraulic, hydrologic and geotechnical aspects of two reservoir basins regarding the need to increase water supply and drought resilience as well as develop a destination recreational park. The two basins were originally constructed in 1916 and 1935 to serve as a water supply for the city. Since development of alternate water supply sources in the 1970s, they have been primarily used for recreation. City leaders' concerns focused on water quality, sedimentation and the consequent potential to provide emergency water supply during extended droughts.

CEES professors Robert C. Knox and Robert W. Nairn were the original faculty sponsors for the project. In addition, because the scope of the project involved a significant geotechnical component regarding potential seepage through existing berms, slope stability, and the potential to raise these berms to increase water supply, geotechnical engineering professor Gerald A. Miller joined the instructional team. The

efforts of the students were coordinated through the city engineer, Johnny Barron, his staff, the Altus city council and local consulting engineering firm Fox, Drechsler, and Brickley Inc., with the assistance of CEES alumnus Gary Brickley.

Environmental engineering and environmental science students, along with interested civil engineering students, were formed into three teams during the fall semester. Each team selected a name, settling on H2Orbital, Possum Trot Consulting and Reservoir Docs, and conducted two weekend-long water and soil sampling efforts. A geotechnical investigation also was conducted using a drilling rig, which was coordinated with the City of Altus and Midwest Engineering and Testing Co. Prior to field work, the teams developed approved quality assurance project plans, health and safety plans, sampling and analysis plans and work plans, just as would be required for any "real world" engineering or science project.

Student teams conducted bathymetric surveys, sediment sampling and analyses, water quality analyses, environmental regulatory and permit evaluations, evaporation studies, hydrologic assessments, and a dam stability evaluation, and determined the need for and feasibility of reservoir rehabilitation. The student teams shared data and each team compiled their findings into final reports and a single combined oral presentation. The students completed practice presentations in front of the CEES Visiting Council in March and the CEES faculty in April. Final



project presentations were provided at a public meeting attended by several dozen interested local citizens and at an Altus City Council meeting in late April – once again, just as if it were a "real world" engineering project.

Feedback from the final reports and presentations was exceptionally positive. Barron forwarded remarks he collected after the meeting that indicated the public and city council were astonished by the sophistication and professionalism of the student teams. Two weeks later, he contacted Nairn about an open position on the city engineering staff that he would like to make known to all the capstone students; coincidence or reflection of the quality of CEES seniors? We think the latter.



CEES Hosts Architectural Engineering Institute 2017 National Conference

CEES hosted the 2017 Architectural Engineering Institute National Conference at the Sheraton Downtown Hotel in Oklahoma City April 11-13. With a theme of “Resilience of the Integrated Building,” Oklahoma served as an excellent venue, given our propensity for several types of natural disasters, including tornadoes, earthquakes, wildfires and flash floods. The technical program included two keynote presentations, three panel discussions and 104 technical presentations covering the planning, design, construction, operation and maintenance of buildings. More than 20 OU faculty members participated in the conference by presenting papers, moderating sessions, serving on panel discussions and giving one of the keynote presentations. Finalists for the AEI Student Design Competition also presented their projects to a jury of design professionals.

Several CEES faculty members helped make this conference an outstanding success. Associate professor Jeffery Volz served as chair of the conference and editor for the

conference proceedings; professor Muralee Muraleetharan and assistant professor Scott Harvey participated in a panel discussion on recent Oklahoma earthquakes; assistant professor Royce Floyd served on the local planning committee and moderated several conference sessions; and professor and CEES director Randall Kolar gave a wonderful welcome presentation to the conference attendees. CEES and the college provided funds to co-sponsor the opening reception. In addition to the faculty, several CEES graduate students helped with the conference, including Lexis Allen, Amy Crone, Jon Drury, Trevor Looney and Rex McLaughlin.

Not counting the biennial WATER Center conference, this is the third major national conference that CEES has hosted over the past four years. As anyone who has helped organize such a major event will attest, they are a ton of work, and none of the events could have been pulled off without the “team first” attitude exhibited by the CEES staff and faculty. But such investments provide many short- and



long-term benefits, e.g., providing a nearby venue for our students to interact professionally, creating a networking opportunity for faculty and students, and promoting our “brand” to a national audience. Structured feedback and anecdotal comments from participants were very positive, and the attendees appreciated the level of detail that was put into organizing the events, not to mention that they were charmed by our Oklahoma hospitality!

Fall 2017 Will Bring Engineering Accreditation Commission of ABET Program Evaluators to Campus

It is hard to believe, but it has been six years already since CEES’s last accreditation visit; our next one is scheduled for fall 2017. As alumni and friends of CEES, you know that accreditation of an undergraduate engineering program is critical to the vitality of the department. Thus, it is gratifying to see all CEES faculty, staff and visiting council members rally around the tasks needed to navigate the accreditation review requirements. In particular, for each required class, examples of student work for all homework assignments, quizzes, exams and reports had to be compiled during the last academic year. Furthermore, for a subset of these classes, the faculty had to use specific assignments or test questions to address the EAC of ABET’s 11 “a-k student outcomes,” which address everything from the ability to solve engineering problems to an understanding of ethics. This information, along with

other departmental and institutional data, was compiled into a self-study report, one for each of CEES’s three engineering degrees: civil, environmental and architectural. Each self-study was about 100 pages in length, along with nearly 200 pages of appendices, i.e., this was no small undertaking! The second step of the accreditation process occurs this October when the program evaluators will visit CEES for two days to conduct meetings with students, faculty, staff and administrators. Based on the self-study and the information from the site visit, the evaluators will make a recommendation on whether a program receives full (six-year) accreditation, or some concerns need to be addressed.

Based on the solid program curricula and the quality of our faculty as well as the data gathered, the CEES EAC of ABET team is confident of a positive review.

OU WaTER Center Celebrates 10th Anniversary of Symposia and Conference Cycle



Stephen Luby, 2009



Ben Fawcett, 2011



Ada Oko-Williams, 2013



Peter Lochery, 2015



Eric Stowe, 2017

Nearly 150 people gathered in the Molly Shi Boren Ballroom in Oklahoma Memorial Union in fall 2016 as the OU WaTER Center hosted its fifth biennial OU WaTER Symposium. The symposium, which this year included a dinner, featured discussions and an interactive question-and-answer session concerning global water

issues with a distinguished panel of jurors who earlier in the week deliberated together to select the 2017 University of Oklahoma International Water Prize recipient.

The five jurists and panel participants were: Ned Breslin, former CEO of Water For People; Sarina Prabasi, CEO of WaterAid; Afreen Siddiqi, Ph.D., research scientist and visiting scholar, MIT and Harvard; James Smith, Ph.D., University of

Virginia professor; and Eric Wood, Ph.D., Princeton University professor.

The highlight of the symposium was the announcement by the jury of the recipient of the 2017 Water Prize, Eric Stowe. Stowe is the founder and executive director of Splash, a social justice and international development organization committed to safe water for children who also currently is a professor at Stanford University. Stowe will accept the prestigious prize and give a plenary talk at the 2017 OU International WaTER Conference in Norman this September.

The 2017 conference theme is *A Decade of Progress – A Vision for the Future*. WaTER Center staff members are particularly excited about the conference this year because, as the theme suggests, it will be a celebration of the 10th anniversary of the biennial conference and prize cycles.

Stowe will receive his prize, an original hand-blown glass globe trophy, and \$25,000 at the conference banquet, where he will give the plenary address. Joining Stowe at the conference, and making this celebration of water and sanitation all the more exciting, will be past prize winners, who will speak during the conference and participate in a panel discussion. Past prize winners are Stephen Luby, 2009;

Ben Fawcett, 2011; Ada Oko-Williams, 2013; and Peter Lochery, 2015.

In addition to the plenary address, conference participants will experience collaborative gatherings and informative panel discussions with opportunities to share experiences and discuss future water, sanitation, and hygiene (WaSH) challenges and solutions. The conference also will provide opportunities for attendees to join in special activities, such as an Ethiopian coffee ceremony, a student poster competition and increased post-conference workshop sessions, such as well-drilling and social entrepreneurship.

As in years past, the conference is expected to gather together more than 200 WaSH experts, students and interested participants from an estimated 20 countries. Conference dates are Sept. 18-20, 2017. Registration information for the conference is available at WaTER.ou.edu



CONNECT WITH US!

THE UNIVERSITY OF OKLAHOMA

School of Civil Engineering
and Environmental Science



OU in Uganda – Gulu Revisited

WaTER Center co-director for education and outreach Jim Chamberlain and three other OU faculty members led a group of 12 undergraduate students back to Gulu, Uganda, for the second annual summer offering of a new interdisciplinary service learning immersion class. The technical course is offered through the Gallogly College of Engineering, and the cultural course is offered through the College of International Studies; it counts as six credit hours toward both a student's



OU students, along with Sr. Rosemary, are delayed for hours on a dirt road due to a stuck logging truck.

degree and the WaTER minor. Faculty and students who traveled represented the Gallogly College of Engineering, Price College of Business and Jeannine Rainbolt College of Education. The “clients” for this course were the Sisters of the Sacred Heart, led by Sr. Rosemary Nyirumbe, and the girls of Saint Monica’s Tailoring Centre in Gulu.

Engineering students were initially tasked with building a spring water protection system on a 100-acre farm-site about three hours outside of Gulu. Unfortunately the spring was never discovered, so the students turned their energies to hiring a well driller to drill a water well (using money donated by Norman Rotary Club), evaluating vendor bids for solar panel installation at Saint Monica’s, and assisting in the construction of a new library on the Gulu campus. Each

of the projects came with its own challenges. The two solar vendors had given bids using different assumptions, so the students had to parse the bids and reconcile the differences. Students also contributed their labor by laying ceramic floor tile in the library, but progress was delayed when electricity went out. The farm water well project also was delayed because of bad roads, a logging truck jam, difficulty in financial transactions and malaria sickness among two of the technical crew.

On their final day in country, after three weeks of coordinated effort, the well had still not been built. While not bringing projects to closure is disappointing, the experience provided the students with an example of the unpredictability of life in a developing country.

On the other hand, the team was also treated to immense hospitality and a rich taste of Ugandan culture. The

Ugandan girls prepared the delicious meals each day as part of their education in catering, and they showed the students how to hand-wash their own clothes. On one special occasion, children from three Catholic schools danced and sang their native dances, following a big Mass in the Adjumani parish church and a home-cooked meal on the parish grounds. Our OU students also played lots of soccer and volleyball, and helped stage a talent show with the nearly 400 girls in the school.

Because this class is interdisciplinary, the engineering students also participated in sessions with students of the two other disciplines. The business students formulated a business model for a brick-making machine to be used as a profit-generating device for the Sisters; the education students taught both younger girls and older women as part of the ongoing school curriculum at St. Monica’s; and the engineering students assisted in math and English tutoring of the older women who were getting their first opportunity to learn how to read, write and work with numbers.

Said Chamberlain, “There were many laughs and tears shared by our students and the girls at Saint Monica’s when the bus pulled out on the final day. We all feel that through this successful course, all of our students received a solid taste of the joys and challenges that come with development work in a resource-challenged setting.”



Amanda Elmendorf, along with Jordan D’Silva, laying floor tile in the new library at Saint Monica’s.



Engineering students working on their solar design analysis at the corner restaurant at Saint Monica’s. Clockwise, are Felicia Padilla, Amanda Elmendorf, Jim Chamberlain, Matt McClure and Louise Kuhster.

Undergraduate Enrollment Trends in CEES

Paralleling unprecedented enrollment growth in the Gallogly College of Engineering, CEES's undergraduate programs also are witnessing an enrollment boom, as can be seen in the accompanying graphs (these are based on official fall semester enrollment numbers). The steepest increase occurred between 2015 and 2016, with CEES experiencing an overall 23 percent increase (all majors), driven largely by an increase in civil engineering majors, which saw a 39 percent increase. Furthermore, the fall 2016 total enrollment of 417 was an all-time high for CEES. Projections for 2017 call for a small increase, so this record may be short-lived!

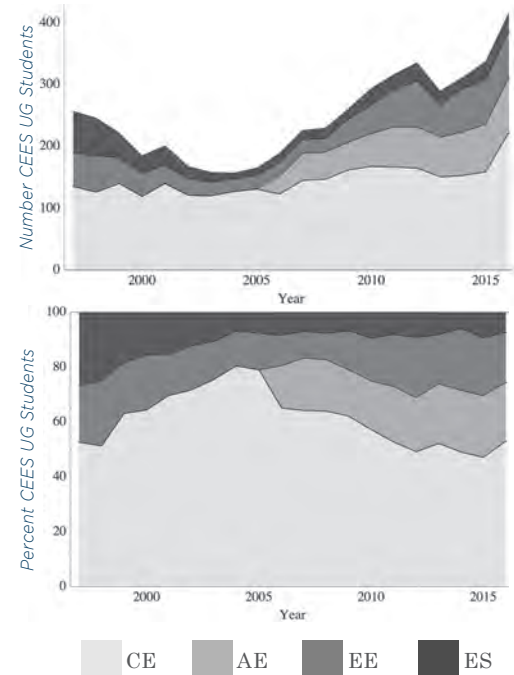
A look at trends over the last 20 years reveals some interesting points: the architectural engineering program, introduced in 2006, grew rapidly at the expense of the civil and environmental engineering programs, but since then, AE and EE have stabilized and each represent about 18 to 20 percent of the overall undergraduate population; CE, as a percentage of the whole, dropped from a peak of nearly 80 percent in 2004 to around 50 percent recently; and lastly, environmental science majors

peaked around 25 percent of the CEES undergraduate student population in 1997 and dropped to around 10 percent in 2004, which has been the trend since then.

More importantly, what is contributing to this latest growth spurt in overall enrollment? We lack sufficient data (and resources) to pinpoint the exact cause, but anecdotal evidence suggests it is due to several factors: plentiful job opportunities for CEES graduates; the downturn in the petrochemical sector due to reduced oil prices; a heightened interest among undergraduate students wanting to make a difference in the world (which all of our majors allow students to do); and our charming personalities (seriously, we hear from many transfer students about the friendly and helpful CEES faculty/staff).

While growing enrollments are certainly preferable to shrinking ones, they do create a lot of new stresses for the department, especially when it comes to teaching workload, class and laboratory space, and adequate TA support. While CEES can manage this enrollment bulge in the short-

term, sustaining it and accommodating even more growth will require not only careful planning, but an infusion of resources as well.



Inaugural Dolese Teaching Fellows Named



Tommy Bounds



Trevor Looney

We in the Gallogly College of Engineering are very grateful to Dolese Bros. Co. for providing the resources to pilot a new program for the 2017 academic year, which supports teaching excellence by granting \$250,000 in graduate teaching fellowships. Dolese Teaching Fellows receive a stipend from the fund, and in return, they are expected to support the instructional mission of the college by teaching (or co-teaching with their adviser) a class or laboratory section. CEES awarded its \$25,000 share to two doctoral students, Tommy Bounds and Trevor Looney.

A native of Oklahoma, Bounds attended the University of Oklahoma, where he

completed both his bachelor's and master's degrees in civil engineering. His master's thesis research, conducted under CEES professor Gerald Miller, investigated soil stabilization with non-lime-based stabilizers in clayey soils with and without sulfates. After completing his master's degree, Bounds worked for Red Rock Consulting in Edmond, Oklahoma, as a project specialist and then became a project engineer after receiving his professional engineering license. While at Red Rock Consulting, he worked on numerous foundation investigations for projects, ranging from bridges and embankments to multilevel building and parking garages. After three and one-half years in practice, Bounds returned to CEES and began work on a doctoral degree in civil engineering under the guidance of CEES professors Miller and K.K. "Muralee" Muraleetharan. Bounds will be lead instructor for the undergraduate soil mechanics lab in fall 2017.

Looney received both his bachelor's of science degree (with Summa Cum Laude

honors) and his master's degree in civil engineering from the Missouri University of Science and Technology in 2010 and 2012, respectively. He currently is working toward his doctoral degree in civil engineering from OU under the guidance of CEES associate professor Jeffery Volz.

Looney's master's research also was guided by Volz and focused on the effects on bond strength of high-volume fly ash and self-consolidating concrete for infrastructure applications. Upon completion of his master's degree, Looney worked for ENERCON Services in Kansas City, Kansas, until moving to Wallace Engineering in Tulsa. He has worked on projects related to modifications to nuclear facilities and the design of steel, reinforced concrete and wood structural systems for buildings, and conducted special inspections on steel, reinforced concrete and masonry structures. Looney will teach a section of statics in fall 2017.

Vogel Named Director of Oklahoma Water Survey and Joins CEES Faculty



Jason R. Vogel, Ph.D., P.E., has been selected as the second director of the Oklahoma Water Survey at the University of Oklahoma. Located

in Five Partners Place on the University Research Campus, the Oklahoma Water Survey was founded in 2011 and serves as an important focal point and catalyst for the university's expertise in research, outreach and education in water topics. Its goal is to study the state's water resources and to collect, analyze, interpret and disseminate research-based information about water to a wide array of stakeholders. The Oklahoma Water Survey is affiliated with four other natural-resource state surveys (Archeological, Biological, Climatological and Geological) as part of the planned Plains Institute at the university. With its statewide responsibility, the Oklahoma Water Survey works with federal, state and tribal governments; organizations; universities; industry; communities; businesses; and citizens who have interests in Oklahoma's water resources.

Prior to joining OU, Vogel held faculty and research positions at Oklahoma State University in the Department of Biosystems and Agricultural

Engineering and the U.S. Geological Survey. Vogel earned his doctoral degree from OSU in 2001 and also holds degrees from Texas AM University and the University of Nebraska. In addition to his administrative appointment at the OWS, Vogel will have an appointment as an associate professor in CEES, where he will collaborate with faculty to help fulfill the mission of the school.

During a career spanning over two decades, Vogel has worked to facilitate and develop solutions to water issues throughout the Great Plains. While at OSU, he developed an award-winning research and outreach program on stormwater and stream management, and he is recognized as one of the leading experts in low-impact development stormwater management systems in the region. In his role at OSU, Vogel presented and/or organized water-related educational programming to more than 10,000 individuals, including water-industry professionals, government officials, regulators, youth and the general public, at more than 230 events. These activities include founding and organizing the Biennial Great Plains LID Research and Innovation Symposium and an associated multi-disciplinary LID Design Competition for local professionals. Prior to joining the faculty at OSU, Vogel conducted research on a wide variety of complex water

issues as a research hydrologist with the United States Geological Survey and as an adjunct faculty member in Biological Systems Engineering at the University of Nebraska.

Vogel has served the water sector in leadership positions and on committees at the national, state and local levels for a variety of groups, including the Water Environment Federation, American Society of Civil Engineers, American Society of Agricultural and Biological Engineers, American Ecological Engineering Society, Oklahoma Clean Lakes and Watersheds Association, Disaster Resilience Network of Tulsa, Green Country Sustainability Forum, and Stillwater Drainage Appeals Board.

Vogel is accompanied in his move to Norman by his wife, Stephanie, and their twin daughters. When not working on solutions to Oklahoma's water issues, he enjoys watching college football, listening to red dirt music and fishing.

"I speak for all of CEES when I say that we are so very pleased to have Dr. Vogel joining us at OU," said CEES director Randall Kolar. "His wide-ranging background and work experiences make him the perfect fit to lead the OWS and serve the state, and his research expertise is very complementary to strategic initiatives in CEES."

CEES Staff Members to Retire in December

It is with mixed emotion that we report the upcoming retirements of longstanding CEES staff members Audre Carter and Susan Williams. Both will retire at the end of this year with 25 and 23 years of service, respectively.

Carter joined CEES in 1993 as a staff assistant. She was promoted to administrative assistant in 1996 and became responsible for providing oversight of the staff, in addition to budgeting and accounting functions for the school. She was recognized by the university with the Distinguished Service Award in 1998. "I credit my success to an exceptional staff and am proud to be a part of the CEES team," Carter said.

Carter looks forward to traveling and spending time with family and friends in Colorado, Florida and Louisiana.

Williams started at OU in 1972 and, after a hiatus as a stay-at-home mom, joined CEES in 2000. Her primary responsibilities have been assisting graduate students from admission to graduation and coordinating teaching schedules for faculty and students.

"Serving others is my passion," said Williams. "It has been a blessing to serve the CEES faculty and students. Through the years, I have been honored to receive the university's Distinguished Performance Award and the

continued on next page

Hong Named Gallogly Chair

For his sustained excellence and research productivity, Yang Hong, Ph.D., professor of hydrometeorology and remote sensing in CEES, recently was named a Gallogly Chair, one of the highest honors bestowed on members of the Gallogly College of Engineering.

Hong joined OU in 2007 and has research expertise in hydrometeorology, climatology and remote sensing; he also has an appointment in the School of Meteorology. Hong serves as director of the Hydrometeorology and Remote Sensing Laboratory (HyDROS Lab: <http://hydro.ou.edu>) at the National Weather Center in Norman and as co-director of research at the OU WaTER Center. His areas of research span the wide range of hydrology-meteorology-climatology, with particular interest in bridging the gap among the water-weather-climate-human systems across scales in space and time. He has developed and taught classes related to these topics, such as remote sensing retrieval and applications, advanced hydrologic modeling, climate change and natural hazards, engineering survey/measurement and statistics, land surface modeling and data assimilation systems for hydrological cycle, and water systems under a changing climate.

Hong has served on several international and national committees, review panels, and editorial boards of several journals. He was the chair of the AGU Hydrology Section Precipitation Technical Committee from

2008-2013 and a member of the AGU Natural Hazard Focus Group Executive Committee from 2014-2017. In 2012 he co-edited the book *Multiscale Hydrologic Remote Sensing: Perspectives and Applications* (568 pp., CRC Press). For his prolific publication record (over 300 articles, four books, 31 book chapters and numerous technologies) and contributions to the field, he received the OU Vice President for Research 2016 Award for Scholarly Dissemination “in recognition of exceptional success in disseminating research, scholarship and works of creative activities and expression,” the NASA Group Achievement Award (Global Precipitation Measurement Mission) in 2015 and the NASA Robert H. Goddard Award in 2014.

Most recently, he co-authored the book, *Hydrologic Remote Sensing: Capacity Building for Sustainability and Resilience* (413 pp., CRC Press, 2016). It addresses the challenges and opportunities of global water security, reviews the multiple satellite remote sensing observations available for monitoring the water cycle in emerging regions and over the globe, and discusses the application of satellite remote sensing in hydrological modeling and data assimilation. Furthermore, the book presents the hydrological capacity-building tools developed by the NASA Applied Science Program and the HyDROS group at the University of Oklahoma during the past decade.

Hong received his doctoral degree major in hydrology and water resources and

doctoral degree minor in remote sensing and spatial analysis from the University of Arizona (2003), his master's degree in Environmental Sciences (1999), and his bachelor's of science degree (1996) in Geosciences (1996) from the Peking (Beijing) University, China.



On the awarding of the Gallogly Chair, CEES director Randy Kolar stated, “Dr. Hong is most-deserving of receiving this prestigious chaired position. His vision, his intellect and his work ethic are nothing short of extraordinary, and through that effort, he has established himself as one of the leading scientists in this field in the world. We are indeed fortunate to have a scholar of his stature among our ranks, and we look forward to many exciting discoveries from his research team in the future.”

Hong comments, “I am truly humbled and really thankful for this recognition while approaching my 10th anniversary year at OU. I am very proud to be a part of our great CEES community and am always inspired by our talented colleagues and outstanding leadership, as pursuing excellence is what the Gallogly College of Engineering is all about. Finally, I would like to take this opportunity to thank my great collaborators and my supportive family.”



Susan Williams

continued from previous page

Graduate College's Award for Outstanding Administrative Staff and the Graddy Award. Going forward, I am looking forward to spending time with my seven grandchildren and finding new ways to serve others to help make our world a better place.”

Said director Randy Kolar, “It is impossible to say how much we will miss both Audre and Susan, both their friendship and their indefatigable work ethic. Susan and Audre helped set the ‘team first’ culture



Audre Carter

of the entire CEES staff by rolling up their sleeves and doing what it takes to get the job done. Through the years, they have been an integral part of CEES's success and have created a culture of excellence, yet have maintained a work environment that is more like a family setting than a professional office. Thus, it is no surprise that CEES is known as a desirable place to work. We thank them for all they have done over the years, and we wish them both the very best in the future.”

2016-2017 Graduates

Summer 2016

B.S. Architectural Engineering
Chelsea E. Crissup

B.S. Civil Engineering
Grant A. Shoemaker

B.S. Environmental Engineering
Jennifer G. Franklin

M.S. Civil Engineering
Jenna Jacoby
Darion Mayhorn
Kodi Wallace
Kevin Wise

M.S. Environmental Science
Brandon Holzbauer-Schweitzer

Fall 2016

B.S. Civil Engineering
Preston M. Caldwell
Rex P. McLauchlin

B.S. Environmental Engineering
Donald R. Ryan

B.S. Environmental Science
Tanner S. Tibbetts

M.S. Civil Engineering
Syed Ashik Ali
Troy Bowser
Ivanna Kaid Bay Cortez
Ilias Gibigaye

M.S. Environmental Engineering
Daniel Koehler
Zhu Li
Hayley Normile
Nicole Rowlette

M.S. Environmental Science
Bryan Page

Ph.D. Civil Engineering
Rodney Collins
Arash Hassanikhah
Moeen Nazari

Fall 2016 (cont.)

Ph.D. Environmental Science
Leah Oxenford

Spring 2017

B.S. Architectural Engineering
Douye T. Allison
Candace J. Alsenay
Benjamin A. Colbert
Luis A. Gonzalez
Kristen N. Hayden
Muntanga Y. Muhyila
Yetunde Y. Obasade
Emily J. Averyt
Chandler K. Funderburg
Dakota W. Gennings
Aliou Jobe

B.S. Civil Engineering
Juba W. Allen
Michelle R. Basham
Steven A. Boyd
Caitlin R. Bobb
Lloyd C. Brewer
Skylar J. Calhoun
Connor W. Casey
Raina L. Coleman
Jeremy R. Conway
Tyler M. Dewar
James A. Edgeman
Jacob B. Elliott
Blake R. Goben
Nisal D. Halaba A. Senarathna
Amir Harandi
Jacob J. Harbaugh
Candace B. Herrin
Preston M. Hiemstra
Aaron C. Higgins
Cody D. Huffine
Cameron E. Ibbetson
Ellison A. Jackson
Marilyn M. Johnson
Cody R. Lawson
Amanda Martinez
Nairi Matevosyan
Kurtis E. McDonald
Pavle Milicevic
Mitchell L. Gordon

Spring 2017 (cont.)

Muntanga Y. Muhyila
Andrew I. Newberry-Davis
Jeremy H. Ng
Dare T. Obasade
John D. Poe
Ladan V. Radfar
Dovie M. Rayburn
Victoria L. Risien
Christopher A. Ross
Jacob S. Roswurm
Stephen J. Roswurm
Joshua L. Shatto
Brandon M. Tanksley
Bonheur Tumurere
Dustin S. Vaughan

B.S. Environmental Engineering
Rachel L. Brookins
Joseph C. Haydock
Joshua M. Hinson
Lara J. Mason
Trey S. Peterson
Jennifer L. Salvo
Taylor R. Wall

M.S. Civil Engineering
Chase Angier
Nicholas Duncan
Samantha Heinrich
Ashwin Kesiraju
Kevin Murphy
Luis Pena
Jessica Stanciu
Erin Thornton
Tatiana Vargas

M.S. Environmental Engineering
Ellen Fielding

M.S. Environmental Science
Zhenyu Wu

Ph.D. Civil Engineering
Manabendra Saharia
Teshome L. Yami
Bo Zhang

A Paired Watershed Approach to Evaluate Low Impact Development Practices on Stormwater Quality and Quantity

Stormwater management has become a nationally recognized issue, with many communities facing environmental and human health dilemmas due to polluted runoff. For example, in 2015, a toxic algae bloom in Lake Erie – driven by stormwater runoff – resulted in cutting off the water supply for the city of Toledo, Ohio. Last summer, a similar bloom – again driven by excessive pollutant concentrations in runoff – is wreaking havoc in Florida. Closer to home, Lake Thunderbird, Norman's primary drinking water source, is listed as an impaired water body due to excessive pollutant loads, primarily from urban runoff. Thus, managing both the quality and quantity of urban runoff is a priority.

As part of the Lake Thunderbird Watershed Implementation Project, the Oklahoma Conservation Commission provided funding to OU to implement and evaluate “low impact development” urban stormwater best management practices in a new residential neighborhood, and compare them to traditional management. Project partners included the OU Division of Landscape Architecture, Ideal Homes, Terra Verde Land Development, CH Guernsey Engineering, SMC Engineering, the City of Norman Public Works and Planning Divisions, and Watershed Restoration Inc. CEES graduate students Brandon Holzbauer-Schweitzer (M.E.S. 2016 and current doctoral student), Noah Berg-Mattson and Michael Rice (B.S.E.E. 2010, M.S.E.E. 2015), and CEES professor and director of the Center for Restoration of Ecosystems and Watersheds Robert W. Nairn, conducted all water quality and quantity monitoring. The Trailwoods residential neighborhood included two instrumented watersheds, each a little over two acres in size. To evaluate the efficacy of the systems (quality and quantity), traditional curb and gutter management (the “control watershed”) was compared to low impact development practices (the “treatment watershed”), the latter of which included rain barrels, rain gardens and permeable pavement.



Treatment watershed test flume showing approach and permeable pavement section with sampling station in background; the gun safe houses the automatic sampler and related gear



Treatment watershed rain garden between sidewalk and street



Control watershed test flume and sampling station; the gun safe houses the automatic sampler and related gear

A total of 35 precipitation events were captured during the study period from 2013-15. First-flush samples were collected for 25 events, while storm composite samples were collected for 10 events. Event precipitation ranged from 0.04 to 3.99 inches, with maximum daily five-minute precipitation intensity ranging from 0.96 to 2.75 inches per hour. Peak discharge rates for the LID watershed (0.57 ± 0.28 cubic feet per second or cfs) were significantly lower than those for control (0.78 ± 0.53 cfs) but median total discharge rates did not differ significantly (73 ± 16 vs. 77 ± 29 cfs). Total storm volumes did differ statistically, with mean LID volumes (6130 ± 937 cubic feet) lower than control volumes (7676 ± 1745 cubic feet). Overall, for all storm events sampled, the treatment watershed produced 20 percent less water. Water quality results varied with first-flush and storm composite sampling regimes and individual storm events. Overall, total suspended solids, biochemical oxygen demand and trace metals (aluminum, arsenic, cadmium, cobalt, chromium, copper, nickel, lead, and zinc) concentrations and loads were generally lower for the treatment watershed than the control. Total and nitrate-nitrogen concentrations and loads were significantly lower ($p < 0.10$) for the treatment side as compared to the control values. However, significantly higher ($p < 0.10$) dissolved reactive and total phosphorus concentrations and loads were produced by the treatment watershed. The research team believes this is likely due to release of phosphorus from the rain garden organic planting media.

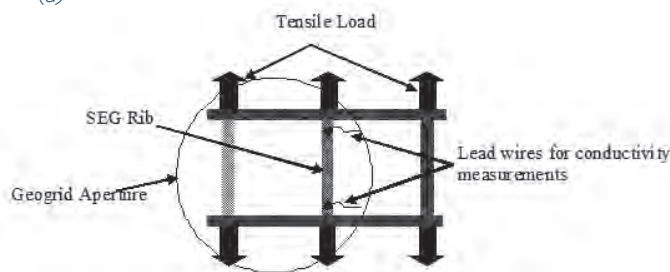
Overall, implementation of “green infrastructure” technologies had a demonstrable influence on stormwater runoff peak discharge rates and total storm event runoff volumes. Water quality results indicated the importance of sampling techniques on performance evaluation (first flush vs. storm composite). Overall, the treatment watershed exported less total suspended solids, nitrogen and metals, but exported more phosphorus. Future research will focus on the use of inorganic media (e.g., sand and fly ash mixtures, recovered mine drainage residuals, etc.) in rain garden substrates to address phosphorus concerns.

CEES Professor Receives Patent Award

CEES professor Kianoosh Hatami received the OU Office of Technology Development Patent Recognition Awards in April 2017 for two international patents on Sensor-Enabled

Geosynthetics Canadian Patent No. 2,766,486 and Chinese Patent No. ZL201180071627.0. Sensor-Enabled Geosynthetics are polymer composites with predetermined concentrations of electrically conductive additives such as carbon black, graphene and carbon nanotubes that make the electrical conductivity of these geosynthetics sensitive to deformation under tensile load (Fig. 1).

(a)



(b)

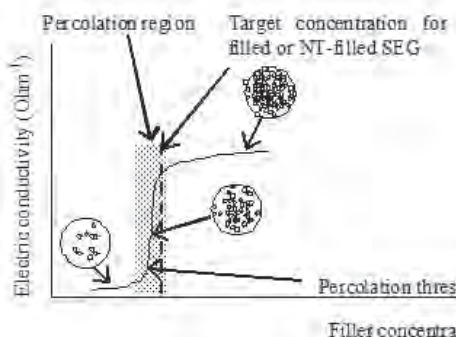


Fig. 1 Concept of Sensor-Enabled Geosynthetics (SEG): (a) a SEG geogrid rib acting as a strain gage, (b) percolation region indicating optimum concentrations of electrically conductive particles in SEG

Performance monitoring of civil engineering projects such as bridge abutments, retaining structures, landfill liners and embankments could help with their timely maintenance, and to prevent potential failures and costly repairs.

As a result, these new generation of geosynthetics can act as sensors and, therefore, do not require complex and costly instruments and data acquisition systems to measure their deformations (typically, axial strains).

Performance monitoring of civil engineering projects such as bridge abutments, retaining structures, landfill liners and embankments could help with their timely maintenance,

and to prevent potential failures and costly repairs. In roadway construction, monitoring the consolidation of subgrade soil and deformations of embankment lifts could help increase the construction speed, resulting in significant cost savings. Current technology for measuring geosynthetic deformation in earthwork construction primarily involves the use of strain gages, which is

mainly practiced in showcase and demonstration-type projects due to several limiting factors. Current sensors and their required data

acquisition systems are often costly, tedious and challenging to install properly, and invariably influence the measured strain through their mechanical interactions with the surrounding soil. Additionally, they only

work in a relatively narrow range of strains (e.g. less than 3-5%) and they are prone to premature detachment from the geosynthetic. Moreover, their in-air calibration factors can be significantly erroneous for in-soil applications. Therefore, geosynthetic strains measured in the field may not be very accurate or reliable. Sensor-Enabled Geosynthetics can address these shortcomings and, thereby, help promote performance monitoring practice in civil engineering projects,



resulting in several advantages as noted earlier.

Hatami's work on the SEG technology, which has been funded by the

NSF, CaNTeC and several OU grants, has so far resulted in four patents, 10 peer-reviewed journal papers, one book chapter and three conference papers. A historical review of SEG and its state of development by Hatami and his research team can be found in a recent paper by Yazdani and Hatami [1].

References

1. Yazdani H and Hatami K, 2016. Sensor-Enabled Geogrids for Stabilization and Performance Monitoring of Earth Structures: State of Development. International Journal of Geosynthetics and Ground Engineering, Springer, 2(37), DOI 10.1007/s40891-016-0077-z.

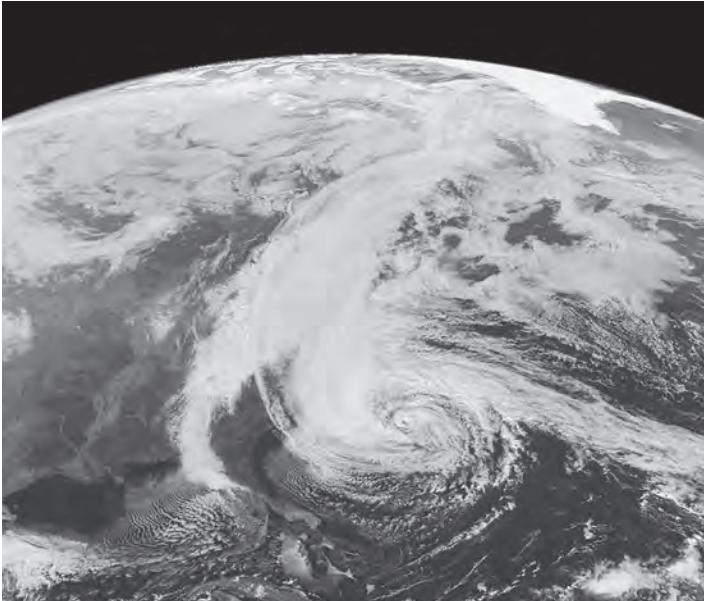
CEES Faculty Develop Model to Improve Responses During Hurricanes

CEES assistant professor Kendra Dresback and professors Yang Hong, and Randall Kolar, along with post-doctoral researcher and National Weather Center affiliate Humberto Vergara, are collaborating with a

research team from the University of Delaware, Cornell University, State University of New York -Stony Brook, and the Renaissance Computing Institute in North Carolina to develop an integrated digital framework

for modeling hurricane evacuations and sheltering needs. The project objective is to capture the dynamics, uncertainty and interaction between natural, infrastructure and human systems by interconnecting three models that operate on different time and space scales:

a natural hazards model (rainfall, winds, storm surge, tides, waves and riverine flooding), a resident behavior model and a traffic model. Ultimately, the research team would like to transition the system to everyday operations so that emergency managers can use the resulting information to provide more accurate evacuation orders and warnings. In particular, the integrated modeling framework is intended to provide more precise warnings and to address the uncertainties in hurricane forecasts as well as the uncertainties associated with human behavior during hurricane evacuations. Support for the project comes from the National Science Foundation Hazards Science, Engineering and Education for Sustainability program. Further information on the framework and an example case study can be found in a set of companion papers soon to be published in the journal, *Risk Analysis*.



AP Photo/The Houston Chronicle, Johnny Hanson (Sandy satellite view) NASA Earth Observatory, GEOS-13

Hong Team Receives Prestigious PIRE Award



CEES and Advanced Radar Research Center professor Yang Hong won a Partnerships for International Research and

Education award from the National Science Foundation for his team's proposal "Taming Water in Ethiopia—An Interdisciplinary Approach to Improve Human Security in a Water-Dependent Emerging Region." This five-year award for more than

\$4 million is a collaborative project with the University of Connecticut, University of Wisconsin and International Flood Policy Research Institute. The entire PIRE team includes partners from six countries.

The NSF website defines PIRE as a NSF-wide program that supports international activities across all NSF-supported disciplines and defines the goal of PIRE as to support high-quality projects in which advances in research and education could not occur without international collaboration. The PIRE program seeks to catalyze a higher level of international engagement

in the U.S. science and engineering community.

"The project will integrate research, education and outreach, bringing people and resources together across disciplinary, cultural and geographical boundaries to promote interventions in the Blue Nile basin, Ethiopia. The research aligns well with NSF's emerging focus on food, energy and water systems, and lays the groundwork for future projects to understand trade-offs, feedbacks and synergies between sectors and resources, manifesting in physical and social environments," said Hong.

Nanny Leads OU Effort on Renewable and Sustainable Energy Issues



In August 2016, CEES professor Mark Nanny was named Distinguished Faculty Fellow of Sustainable/ Renewable

Energy in the Center for Applied Research and Development. Housed under the Office of the Vice President for Research, CARD facilitates R&D opportunities to complement existing OU strengths in basic research and outreach by focusing on applied research and development, with a goal toward commercialization.

"It is a great honor to serve as the OU leader and coordinator of efforts related to renewable and sustainable energy issues," said Nanny. "It's taken time to grasp the magnitude of the breadth of the renewable energy arena, particularly as it relates to OU's expertise, especially since OU has so many active areas of basic research which can be developed into beneficial applications addressing the numerous energy problems and needs facing our nation."

As part of the CARD Fellowship, Nanny is chairing the Steering Committee for the Sooner Renewable Energy Research Initiative to develop a strategic plan for leading OU to become a global leader in renewable energy research and applications. Through the input and collaboration of faculty across OU, three broad topical areas were identified: 1) synthesis and production of new and unique energy materials; 2) resiliency and robustness of energy resources, networks, distribution systems and energy infrastructure; and 3) social/political perceptions of risks associated with renewable energy. With these key areas in mind, Nanny, along with the VPR's office,

is actively facilitating collaborative research projects and outreach between OU and various energy industries and organizations, such as ENEL Green Power, OG&E, the OCK Office of Sustainability and the Solar Foundation. Many of the projects under discussion utilize OU's rich expertise in meteorology, unmanned autonomous vehicles, energy storage and grid analytics.

"The renewable and sustainable energy skills and knowledge of OU faculty are amplified by the fact that we're located in a unique and energy rich region of the U.S.," says Nanny. With this regional energy focus in mind, Nanny and professor Dipankar Ghosh of the OU Steed School of Accounting and Energy Institute,

The renewable and sustainable energy skills and knowledge of OU faculty are amplified by the fact that we're located in a unique and energy rich region of the U.S.

led the OU contribution to "Creating a Multi-State Energy Technology Ecosystem for Accessible, Affordable, Clean Energy in the Southwest," a Department of Energy proposal led by the University of Texas at Austin, which included 13 universities from Texas, Oklahoma and New Mexico and the Sandia National and Los Alamos National Labs. If funded, this proposal will examine the multi-state regional energy technology innovation ecosystem while centering on the energy-water nexus, oil and gas, and fostering an innovation ecosystem. The outcome is to identify optimal ways to facilitate energy innovation while maximizing existing energy technology development at the regional level.

"Focusing on renewable energy resources also requires us to reach out

to students who eventually someday will develop and implement the next generation of energy technology," says Nanny. Through the efforts of Nanny and Debra Teufel, OU director of Public Private Partnerships, OU hosted the first-ever Statewide KidWind Challenge with support from the Gallogly College of Engineering and the Price College of Business, as well as Google, ENEL Green Power, EDP Renewables, and Southern Power. KidWind, a national leader in wind energy education, along with the Oklahoma Wind Coalition and SpiritWind Kidz Ranch, co-organized this event to promote K-12 education focusing on local renewable energy by providing hands-on experience with wind power technology. In April of this year, more than 70 students from

13 Oklahoma middle and high schools showcased and tested their teams' hand-crafted wind turbines in a large wind tunnel, as well as engaged in a variety of instant challenges assessing their engineering, problem solving and teamwork skills. Held across the United States over the past 12 years, KidWind's Challenge

Events create opportunities for students to learn about renewable energy and climate issues, while driving excitement for science, technology, engineering and math fields.

Nanny is positive that OU will be successful in establishing a strong reputation in renewable energy research and outreach. "While OU may be behind the curve compared to other universities with respect to a university-wide, coordinated effort in renewable energy, we have many talented faculty engaged in diverse research areas that in some way or another impact renewable energy technology and science. The key is to nurture these valuable resources so OU becomes a mature leader in areas unique to its expertise and talents."

The Donald G. Fears Structural Engineering Lab Is Bursting at the Seams (Again) – Time to Expand

Even though the testing area available at the Fears Lab has grown 64 percent over the last decade, the lab once again has no space available for more growth. Between assistant professor Harvey's six-degrees of freedom shake table, assistant professor Floyd's pre-stress bed and slab samples, associate professor Volz's 50-foot American Association of State Highway and Transportation Officials girder, associate professor Ramseyer's concrete materials and pavement slabs,



Success also will be contingent upon raising private funds, so we are also working closely with the GCoE development office.

professor Hatami's and associate professor of architecture Holliday's compressed earth block wall specimen, and assistant professor of architecture Shadrivan's lateral loads on residential walls, the available testing space has been exhausted. Add to this the monthly American Concrete Institute certification tests; outreach presentations, such as the Wounded Warrior program; lab classes for Steel I and Concrete I; and high school engineering days, plus Chamberlain's Water Technologies for Emerging Regions class, and scheduling becomes more like a game of "whack a mole". Noteworthy in this expanded list of activities is the interdisciplinary nature of the research and outreach work, i.e., Fears no longer is just a structural testing facility, but instead accommodates geotechnical and environmental work as well.

While concrete material research has been very strong at Fears Lab for the past 20 years, recently, large-scale structural elements also have become a large portion of the testing performed at Fears. For example, Floyd, Volz and associate professor Pei have been working with large

AASHTO girders for several years, and Ramseyer had the largest successful test in recent memory of partial joint penetration for a 44-inch deep beam to column moment connection. The AASHTO girders alone take up a quarter of the strong floor, and at one point two of these were in the lab at the same time. The large-scale PJP test took up half the strong floor. According to Mike Schmitz, Fears Lab Shop supervisor for over 30 years, the volume of work flowing through the lab is greater than any other time he has seen during

his tenure.

While such activity is exciting and indicative of a strong program, Ramseyer, who serves as lab director, noted that this condition has existed for some time and is getting to the point that work is being hampered and ensuring that all students follow safety protocols has become more difficult. Thus, Ramseyer has initiated several discussions between CEES director Randall Kolar and GCoE dean Tom Landers that broached the idea for a Fears expansion. Ramseyer enlisted the help of his graduate students to develop a 3d model of a possible Fears Lab expansion to serve as a strawman; the figures below show two views from this model. Ideally, the plan would grow the high-bay floor space, add a temperature-controlled area for civil engineering materials research, include a classroom, complete the perimeter fence, and add much-needed office space. As presented, the plan also would update the facade of Fears to be more consistent with the architecture of the south research campus.

Said Kolar, "With the business model on the south research campus of co-locating paying tenants with OU research space, I truly believe this plan is more than just a dream. CEES has discussed the plan at length with the Visiting Council, and it is aggressively pursuing funding models to see it become a reality. Success also will be contingent upon raising private funds, so we are also working closely with the GCoE development office. When a call is made to support this capital campaign, I sincerely hope that CEES alumni and friends will be generous, as they have been in the past."



Alumni Spotlights



Alan Armstrong: Career success reflects support from many along the way

Exposure to the energy business at an early age provided Alan Armstrong valuable insight into career opportunities within the industry.

“I come from a long history of Phillips Petroleum career employees,” Armstrong says. “Both

sets of grandparents, my parents and an uncle all had lifelong careers there.”

So it may come as no surprise that, upon earning his bachelor of science degree in civil engineering from OU in December 1985, Armstrong began immediately working at Tulsa-based Williams.

Over the next three decades, Armstrong’s passion for helping to grow Williams brought him increasingly higher levels of responsibility within the company.

In 1995, he was named director of commercial operations for Williams’ midstream business in the Gulf Coast region before being promoted to vice president of retail energy services in 1997. He then served as vice president of commercial development from 1998 to 1999 and vice president of gathering and processing from 1999 to 2002.

By 2002, Armstrong’s deep and varied experience within the company earned him a spot among Williams’ executive officer team as senior vice president – Midstream, a position he held during a key period which saw Williams’ midstream business grow dramatically.

When chairman, president and CEO Steve Malcolm decided to retire in 2011, the company’s Board of Directors turned to Armstrong to take the reins as Williams’ president and CEO. Since then, under his steady leadership, the company has completed strategic acquisitions, expanded critical pipeline infrastructure and successfully weathered a number of challenges.

During his tenure, Williams has expanded its reach, currently touching about 30 percent of all U.S. natural gas volumes, through gathering, processing, transportation and storage services. In addition, Armstrong serves as chairman of the board and CEO for Williams Partners L.P., the master limited partnership that owns most of Williams’ gas pipeline and midstream assets.

Armstrong serves on the boards of the American Petroleum Institute, BOK Financial Corp., and the National Petroleum

Council. In addition, he serves on the boards of several education-focused organizations, including the OU Gallogly College of Engineering and Junior Achievement USA. Armstrong also is a member of the boards of The Williams Foundation and Philbrook Museum of Art.

In 2012, Armstrong accepted the prestigious OU Regents’ Alumni Award, presented each year to honor alumni and friends for exceptional dedication and service to OU. He also was presented with the Distinguished Graduate Award from the Gallogly College of Engineering.

“These awards were much appreciated honors, but what really has struck me was the support from the faculty, family and friends that it took to get my degree in the first place,” Armstrong says. “Those folks that offered a word of encouragement or some supportive advice along the way really deserve the recognition.”

“The same goes for career accomplishments. It really represents the collective efforts of many people that bring about any accomplishment. A leader’s job is simply to keep all those efforts lined up in the same direction, and to keep people motivated around the achievement of the common goal.”



CEES Alumna Follows Non-Traditional Path

by Jamie Pflasterer

When people ask me about my college major and I tell them that it was civil engineering, I’m often greeted with confusion for two different reasons. Some individuals aren’t familiar

with what civil engineers do; my kids often tease me that civil engineers must be “polite” engineers. While I’d like to agree that we’re polite, my preference is to think of us as “civilized” engineers – bringing the comfort and safety of modern civilization to the public. The technical challenge combined with the mission to build, protect and improve always appealed to me. The other individuals who are surprised tell me that my work doesn’t have anything to do with engineering, so I must be disappointed that I haven’t used my major. On the contrary, I tell them, every day I continue to use what I learned in my engineering studies at OU.

After graduation, I first worked for a business consulting firm for a year before landing with a mortgage bank. This was at the beginning of the dot-com boom, and the bank had just unveiled an innovative mortgage application website where credit

continued on next page

continued from previous page

reports could be pulled, underwriting rules applied, individual pricing given and rates locked in. (This was very high-tech stuff back in 2000!) As part of the secondary marketing team, I worked with the group that built and maintained the underwriting rules used by the site.

My engineering problem-solving skills helped me troubleshoot technical questions, figure out the best way to implement new products and features, and work with outside vendors to make sure that our systems were talking properly with each other. When I think back to this time, there is one experience from OU that I drew on over and over: the first test I took in Dr. Kolar's class. He handed out a paper with an incredibly complicated picture of a multi-loop water distribution system, including measurements for each of the different loops and elevations in the system. In the test, we had to figure out the change in potential energy from the beginning to the end of the piping system. I diligently set to work calculating the energy changes for each set of measurements, working as fast as I could, but still running out of time to finish. (I wasn't the only one.) We all complained that the test was unfair – there was no way that we could finish the problem during the testing period. Dr. Kolar patiently pointed out that we only had to measure the change in energy between the first position at the beginning and the last position at the end of the system – the rest of it didn't matter. It was one of those “aha” moments that has always stayed with me, reminding me to always step back and take a second look at problems that seem very complicated.

I enjoyed the work at the mortgage bank, but unfortunately it did not survive the 2007 financial crisis. Leveraging

the expertise I had developed in project management and working with credit data, I started working for a marketing analytics firm whose customer base included large financial and insurance clients. Again, I drew on my experiences from OU, but from a different class this time. The Leadership and Management class I took with Maj. Gen. Jerry Holmes proved invaluable in learning how to listen and how to work with a team. I currently manage a very talented group that includes programmers, financial modelers and business analysts. Together, we work with our clients to use credit-based models to make their marketing smarter and more cost-effective. The work is fast-paced and complex; we can't be successful without constant communication. To meet the challenge, I continue to draw on the lessons and examples from Gen. Holmes in grit and integrity.

And of course, my learning at OU wasn't confined to the classroom. Being involved with concrete canoe, our student ASCE chapter and Chi Epsilon taught me how to manage my time and priorities – a skill that comes in very handy as a working mom with three kids! (My husband, also an OU graduate, would say that I started applying those lessons in efficiency right away. On our graduation day, we also got married on the OU campus, with Dr. Knox as one of our witnesses.)

Although my post-graduation path has been far from predictable, it continues to be an exciting ride – and one where I am continually discovering new applications for the lessons I learned at OU. Although I'm not a PE, I still remain a prOUd engineer.

CEES Launches New Student Excellence Fund and Hosts Workshop and Reception

CEES launched a new OU Foundation fund in fall 2016 to provide a means for the CEES director to offer discretionary support to CEES students or student organizations that are striving for excellence and enriched academic experiences. Funds may be allocated on a discretionary basis for student enrichment or experiential learning opportunities. Examples include, but are not limited to, student travel/participation in technical, academic or professional conferences; support student expenses to present research; support students and/or teams participating in design/build competitions; support students in teaching, research, exchanges or international experiences; and support student awards and recognition events. To contribute to the OUF giving page at the following URL: <https://giving.oufoundation.org/OnlineGivingWeb/Giving/OnlineGiving/devmain> CEES Student Excellence.

In conjunction with the fund announcement, CEES hosted our inaugural professional development hours workshop and alumni reception. The event is the brainchild of our CEES Visiting Council and is meant to provide a venue for CEES alumni and friends to connect in both a professional and social setting. The 90-minute workshop, titled “Important Aspects of Chemical Stabilization for Fine Grained Soils,” was conducted by CEES professors Amy Cerato and Jerry Miller. The complimentary reception was held on the fifth-floor terrace of Devon Energy Hall and was sponsored by Cabiness Engineering, Garver, Olsson Associates, and Poe & Associates.

We intend to make the workshop and reception an annual event, so please keep an eye out for details about the fall 2017 schedule. We will send announcements to



professional society list serves, our alumni email data base and through LinkedIn, so please keep us up-to-date on your email address should it change. We invite you to recruit, engage and support our students, so please stay connected. If you are not already a member of the CEES LinkedIn Group, here is the link for the University of Oklahoma CEES Alumni and Friends <https://www.linkedin.com/groups/8325288>, so join today!

A Journey Through Sooner Land

Nadarajah “Ravi” Ravichandran (Ph.D., 2005) earned his doctoral degree under the supervision of CEES professor K.K. Muraleetharan and continued his research as a post-doctoral fellow in CEES until he joined Clemson University as an assistant professor in the fall of 2007. Ravichandran was promoted to associate professor in 2013, and he currently is working on multiple research projects: a coupled geotechnical-climatic computer model for designing geotechnical systems; a robust multi-objective design optimization framework for geotechnical systems; and a smart foundation for tall wind turbines. He teaches various courses in geotechnical engineering for both graduate and undergraduate students. In addition to his primary duties, he serves as a visiting professor at the University of Jaffna, Sri Lanka, is a member of the South Carolina State Guard, and serves in many other professional organizations.

Ravichandran is married to Thulasi Vinayagam, who also is an OU CEES graduate. She received her master’s degree in civil engineering in 2004, also under the supervision of Muraleetharan, and worked for EST Inc. in Norman as a structural engineer immediately after graduation. After moving to Clemson, South Carolina, she joined the Roads and Bridges Department of Anderson County in 2008, earned her South Carolina Professional Engineering License in 2009, and currently is overseeing the construction and maintenance of roads and bridges in Anderson County as the head of the engineering division. She received the Government Civil



Engineer of the Year award in 2014 from the South Carolina American Society of Engineers and Project of the Year award in 2016 from the South Carolina American Public Works Association for a Geosynthetic Reinforced Soil-Integrated Bridge System bridge constructed on the Airline Road in Anderson County. She currently is serving as the branch vice president of the APWA’s South Carolina Chapter and chairing the speakers’ bureau committee for the chapter.

The couple earned their bachelor’s degrees in civil engineering in Sri Lanka. Ravichandran obtained his master’s degree in geotechnical engineering at the University of Tokyo and Vinayagam obtained her master’s degree in structural engineering at the Asian Institute of Technology, Thailand. Both came to “Sooner Land” to continue their educations, where they met and were married. They have a daughter who is a rising fourth-grader at Midway Elementary School of Science and Engineering in Anderson.

“Both of us were Sooner football fans since our first day in Sooner Land,” said Ravichandran. “While Thulasi follows only Sooner football, I played cricket for the Sooner Cricket Club while I was a student. Although a lot of things have changed in the last 15 years, the beautiful memories from Oklahoma stay with us forever.”

(Editors’ Note: The couple failed to disclose who they cheered for when OU played Clemson in football!)



In Memorium CEES Emeritus Visiting Council Member Passes

We are sorry to report that Dillard S. Hammett (BSCE, ’54), passed away on Sept. 19, 2016. Hammett was born April 9, 1931, in Seminole, Oklahoma, and was a track letterman and Eagle Scout at Capitol Hill High School in Oklahoma City. He supported himself

through college by working in the oil fields of west Texas and completed his degree in civil engineering with special distinction. He was a member of Sigma Tau and the American Society of Civil Engineers. He served as an officer in the U.S. Marine Corps, where he was cited for heroism for saving the life of a drowning fellow Marine. Hammett spent 60 years working in the energy industry, including Shell Oil and Sedco, where he specialized in new techniques for ultra-deepwater drilling and production in ice-covered oceans. In 1964, Hammett designed and built the first rig to drill in Cook Inlet, Alaska, where tides are the second-highest in the world. In 2017, 53 years later, that rig is still operating. He is named on 20 patents on technical methods associated with his work, and he has given technical presentations worldwide. In 2004, Hammett was elected to the

OU Gallogly College of Engineering’s Distinguished Graduate Society. He and his wife, Georganna, whom he met while a student at OU, always enjoyed returning to campus for the Visiting Council meetings; to them, “it felt like coming home.”

“Dillard always placed an emphasis on giving back to students, and the scholarship luncheons with students were always one of the VC meeting highlights for him. His legacy in this regard will live on with the scholarship that bears his name,” said CEES director Randall Kolar.

“Before, during and after my time as director, Dillard always called. Sometimes once a week, sometimes once a month, but Dillard always called,” said former CEES Director Robert Knox. “The conversation started the same. I would say ‘Hillard, dammit,’ and he would say ‘Knox, how’s it going?’ Then he would say, ‘How’s Ramismeyer doing?’ (He always butchered Chris’s name). Then he would close with ‘let me know if you need any help.’ And he was always there and Dillard always called.”

Hammett is survived by his wife of 63 years; children, Karen Beth, Michael Starr and wife Dixie, Lee Anne Harvey and husband Alex, Jeffrey Alan and wife Nicola, and six grandchildren and four great-grandchildren.

Student Awards and Honors

CEES students are recognized for their commitment and dedication to excellence in their educational pursuits through the various awards they receive throughout the academic year. Each fall, senior students representing each of OU's 171 majors at the baccalaureate level are honored with an Outstanding Senior designation during a ceremony attended by President Boren and each of the deans of OU's colleges and programs. CEES students also earn recognition for poster and oral presentations at professional society conferences and competitions.

Ellen E. Fielding received first place in Best Student Oral Presentation category at the 2017 American Society of Mining and Reclamation conference.

Chandler K. C. Funderburg was named the 2017 Outstanding Senior in Architectural Engineering. Funderburg will remain at OU to complete her master's degree in civil engineering under the guidance of CEES assistant professor Royce Floyd.

Mitchell L. Gordon was named the 2017 Outstanding Senior in Civil Engineering. Gordon is pursuing his master's degree in civil engineering at the University of Washington.

Brandon Holzbauer-Schweitzer won first place in the 2017 Oklahoma State University Student Water Conference poster competition and a travel grant from the American Society of Mining and Reclamation to attend the 2017 conference.

Lane W. Maguire was named the 2017 Outstanding Senior in Environmental Science. Maguire will complete her bachelor's of science degree in fall 2017.

Lara J. Mason was named the 2017 Outstanding Senior in Environmental Engineering. Upon graduation, Mason joined the U.S. Air Force as a bioenvironmental engineer.

Darion T. Mayhorn, (MSCE, 2016) received second place in the Southern Plains Transportation Center Student Thesis competition.

Cameron D. Murray, (PhD, 2017) was named the Southern Plains Transportation Center Student of the Year for 2016. He also won first place for his poster at the 2016 Oklahoma Transportation Research Day.

Peihui Lin was awarded an IASSAR Student Scholarship by the International Association for Structural Safety and Reliability.

Nicholas Shepherd was awarded travel grants from both the American Society of Mining and Reclamation and the OU Graduate College in support of his attendance at the 2017 American Society of Mining and Reclamation conference, where he presented his research.

Amy Sikora received the First Place Best Student Poster award at the 2017 meeting of the American Society of Mining and Reclamation conference.

Zepei Tang received a travel grant from the American Society of Mining and Reclamation to attend the 2017 conference.

Yingjun Wang and Peihui Lin were both awarded a Bullard Conference Presentation & Creative Exhibition Travel Scholarship from the OU Graduate College.

Teshome Yami received the AEESP 2017 Stantec Travel Award.



Chandler K. C. Funderburg



Mitchell L. Gordon



Lane W. Maguire



Lara J. Mason

Faculty and Staff Awards and Honors



Floyd

The 2017 University of Oklahoma Faculty Tribute Awards Ceremony was held April 11 in the Sandy Bell Gallery of the Fred Jones Jr. Museum of Art. Three CEES faculty members were recognized for their achievements in the areas of superior research and creative activity, improving quality of life and outstanding teaching, research, creative activity, and leadership or service. In addition, one staff member was recognized for outstanding service to graduate students. These, and other significant awards that CEES received during the past academic year are noted below.

Royce W. Floyd received the 2016 Gallogly College of Engineering Teaching Scholars Award, given to a GCoE faculty member with exemplary dedication to students, teaching and the scholarship of teaching. The faculty member is recognized for dedication to the scholarship of teaching and the willingness to share this knowledge with others, thereby demonstrating an excellence in teaching, and helping others become more effective teachers.



Harvey

P. Scott Harvey was selected by NSF to join 20 other U.S. researchers to attend a conference and workshop in Santiago, Chile, as part of the NSF-sponsored Pacific Rim Earthquake Engineering Mitigation Protective Technologies International Virtual Environment project. Harvey received his P.E. license in Oklahoma.



Strevett

Kianoosh Hatami received the Regents' Award for Superior Research and Creative Scholarly Activity and a Patent Award from OU. In addition, he was recognized by the faculty of his alma mater, McMaster University, for his achievements in geotechnical and earthquake engineering. Hatami also was promoted to full professor.

Robert W. Nairn received the 2017 William T. Plass Award from the American Society of Mining and Reclamation, was the third-ever recipient of a David L. Boren Professorship at OU and was recognized for his 20 years of service to OU.

Christopher C. Ramseyer received the Vice President for Research Award for Improving Quality of Life and Communities (see *Communiqué* Summer 2016, "CEES Faculty Team Up to Help Moore After Tornado") and was appointed to the Oklahoma State Board of Licensure for Professional Engineers and Land Surveyors. Ramseyer also received a Presidential International Travel Fellowship for travel to teach at Arezzo, Italy.

David A. Sabatini received the Steven K. Dentel Award for Global Outreach from the Association of Environmental Engineering & Science Professors and the Dr. Larry W. Canter Influencing Environmental Interest award from the CEES students.

Keith A. Strevett was awarded the Golden Cheeks from CEES students. This award recognizes the "hardest" and most demanding professor of the academic year.

Jeffery S. Volz received the George W. Tauxe Outstanding Professor Award from CEES students.

Susan R. Williams received a Graddy Award from the University of Oklahoma Graduate College in recognition of exceptional support of graduate students in research, creative activities and education.



Ramseyer



Sabatini



Volz



Williams

Faculty and Staff Awards and Honors (continued)

Hatami Receives Alumni Award from McMaster University



Kianoosh Hatami

CEES professor Kianoosh Hatami, Ph.D., PEng, has been selected by his alma mater, McMaster

University, for his achievements in geotechnical and earthquake engineering. The faculty of engineering are celebrating Canada's 150th anniversary by recognizing the achievements of their top 150 engineering alumni in Canada and throughout the globe.

Hatami is a world-renowned scholar in the field of geosynthetics and soil reinforcement, with four U.S. and international patents, and more than 110 peer-reviewed technical publications. His research and educational contributions have been recognized internationally and at OU through several prestigious awards, including the Sir Casimir Gzowski Medal from the Canadian Society for Civil Engineering, the Middlebrooks Award from the American Society of Civil Engineers, and the OU College of Engineering and Michael F. Price College of Business Alumni Teaching Awards. Hatami will be featured in the McMaster Engineering

distinguished 60th anniversary gallery in 2018.

"I can certainly cite all the typical numbers that are used to summarize an individual's research accomplishments, and Dr. Hatami surely excels in those quantitative metrics, but more importantly, the quality of his research is exemplary. He has positioned himself as one of the leading scholars in geosynthetics, while at the same time giving so much of himself to undergraduate research. CEES heartily congratulates Dr. Hatami on his outstanding achievements," said CEES director Randy Kolar.

Nairn Receives Lifetime Achievement Award and David L. Boren Professorship

CEES professor Robert W. Nairn received the 2017 William T. Plass Award from the American Society of Mining and Reclamation and was named a David L. Boren Professor at the University of Oklahoma.

The William T. Plass award is the most prestigious award bestowed by ASMR. Nominations reflect outstanding contributions in the areas of mining, teaching, research and/or regulatory or environmental consulting as it relates to land reclamation; nominees must be recognized nationally and internationally for their contributions in the field and must have contributed to this field for a significant portion of their career.

Nairn also was the third-ever recipient of a David L. Boren Professorship at OU which recognizes outstanding teaching, research/creative activity and leadership/service. Nairn was nominated for exemplary and seminal



Robert W. Nairn

contributions to the broad area of ecosystem restoration; for his relentless work at the Tar Creek Superfund Site, where his research team has begun to solve the unsolvable problem of contaminated mine seeps; for his passion for hands-on undergraduate instruction and research mentoring; and for his selfless giving of time and talent to communities affected by environmental problems.

"I am humbled by this recognition; everything we do is a reflection of the hard work and perseverance of my students," said Nairn.

"Both the Plass award and the Boren professorship are befitting for someone who has made such exceptional contributions for more than 20 years in the areas of mined land reclamation, teaching, research and service," said Randy Kolar, CEES director.

2016-2017 Scholarship Recipients

The fall 2016 CEES Scholarship Awards Luncheon was held Nov. 6 in the Scholars Room in Oklahoma Memorial Union on the Norman campus. On-hand were scholarship recipients, donors, members of the CEES visiting council and CEES faculty and staff members.

For the academic year 2016-2017, the CEES scholarship committee was able to award a total of more than \$69,000 to 40 students. CEES students, faculty and staff are extremely thankful to all of our donors for their generous support throughout the years.

American Society of Civil Engineers Scholarship

Mark Bustillo, Cody Lawson

CEC Infrastructure Solutions Scholarship

Kevin Murphy

CEES Endowed Scholarship

Austin Woodson

Class of 1997-98 Endowed Scholarship

Jordan Bryan

Dillard S. Hammett Civil Engineering Scholarship

Preston Hiemstra

Ebeling Family Limited Partnership Scholarship

Jacob Roswurm

Eckart-Pontius Scholarship

Mickayla Eisenbrandt

Fred and Katie Cobb and Robert H. Cobb Scholarship

Lane Maguire

George W. Tauxe Endowed Memorial Scholarship

Crystal Baird, Candace Herrin, Cody Lawson, Dustin Vaughn

Guy Bradford Treat Memorial Scholarship

Stephen Roswurm, Stephanie Vo

J.F. Brookes Memorial Scholarship

Dayton Dorman

James M. Robertson Scholarship

Isabelle Cunitz

Jimmy F. Harp Civil Engineering Scholarship

Skylar Calhoun

Joakim G. Laguros Endowed Scholarship

Lydia Dawson

Joe Keeley Endowed Memorial Scholarship

Marilyn Johnson

John and Dolores Owensby Family Scholarship

Kari Cai, Lyndon Crouch, Mickayla Eisenbrandt, Preston Hiemstra, Marilyn Johnson, Durant Leung, Kevin Murphy, Christopher White

John H. Marsh Family Scholarship

Xadrique Filipe Chemane Junior

Larry Canter Scholarship

Daniel Koehler

Larry A. Lowrance Civil Engineering Scholarship

Raina Coleman

ODOT Director / Poe & Associates Scholarship

Michelle Basham, Kari Cai, Skylar Calhoun

OK Structural Engineers/Robert Conforth Scholarship

Christopher Brooks

Ronald L. Sack Scholarship

John Poe

Rory Victor Scholarship

Ashik Ali, Bo Zhang

SAME Scholarship

Laura Mason, Rachel Wesson

Ted A. Kritikos Endowed Scholarship

Christopher Brooks, Lyndon Crouch, Farouq Hanoon, Drew Kay, Durant Leun, Tien Nguyen, John Poe, Dovie Rayburn, Jacob Roswurm, John Toshima

Terracon Foundation Scholarship

Luis Pena, Tatiana Vargas

Wylie Hamilton Barbour Family Scholarship

Lane Maguire

Donors

The J.H. Felgar Society

The Felgar Society is a donor program committed to providing support to our faculty and students through the creation of discretionary funding. Felgar Society members make a five-year pledge toward the campaign and have a substantial impact throughout the Gallogly College of Engineering. Members meet annually to celebrate the successes of the society and its impact on students. To learn more about becoming a Felgar Society member, please contact Susy Calonkey at (405) 325-6971 or scalonkey@ou.edu.

Felgar Society Donors

Michelle Barnett
Richard Barnett
Jim Benson
Black & Associates
Elizabeth Butler
Cabiness Engineering Co.
Audre Carter
Amy Cerato
Jim Chamberlain
Gallogly College of Engineering
Ronald Conlon
Kendra Dresback
Enercon Services
Royce Floyd
M. J. Graves
Kianoosh Hatami
Tohren Kibbey
Randall Kolar
Gerald Miller
K.K. Muraleetharan
Cindy Vitt Murphy
Robert Nairn
Jinsong Pei
David Pierce
Christopher Ramseyer
Michael Schmitz
Marlene Smith
David Streb
Scott Sturtz
Jeffery Volz
Wallace Engineering
Susan Williams
MD. Zaman

2016-2017 Donors

The W.H. Carson Society (Donors of more than \$5,000)

BP America
Communities Foundation of OK –
John Waller
Edward Eckart
National Ground Water Association
Norman Rotary Club
Edward K. Rice
Terracon Foundation
Reginald Whitten

Engineering Fellows

(Donors of \$1,000 to \$4,999)

AJGB International
Boechat Performance Horses LLC
Crafton Tull
James Crawley
Wesley Dunbar
ExxonMobil Corporation
ExxonMobil Foundation
Garver, LLC
M&M Geotechnology PL
MacArthur Associated
METCO
New Technology Ventures Inc
Poe & Associates
Pumps OK
Rieger LLC
Frances Sabatini
Society of American Military
Engineers, OKC Post
The Rotary Foundation – Helga &
Samuel Strong
Vinay Joseph Thottunkal
Water4

The Dean's Council

(Donors of \$500 to \$999)

All Saints Catholic Church
ASCE
Patrick Gorman
Randall L. and Maria Kolar
Oklahoma Structural Engineer Association
Olsson Associates
Jamie Pflasterer
Rory Victor

The Cannon Club

(Donors of \$250 to \$499)

Eugene L. Bell
Keith A. Boe
Paul H. Coon
Kendra Dresback
Ann and Paul Gilje
Bernie Hulme

Brett David Moran
David Sabatini
Md. Zaman

The Shamrock Club

(Donors of \$100 to \$249)

Hugh Adams
Tom Basham
Anna Bergstrom
Jin-Song Chen
Michael Dukes
Nathan Ellis
Michael Bliss Galura
Lewis Goidell
Robert Hamernik
Gregg Hostetler
Roy Toufic Khalife
Larry G. Kuhlman
Aaron C. Little, Jr.
Frank H. Mangold
Sandeep Prem Nayyar
Randall Neuhaus
Victoria Oden
John R. Palafox
Karen Pfeiffer
Linda Scghneider Resnick
Stanley Shelton
Wilma G. Snell
Ilena Varner

Proud Engineers

(Donors up to \$99)

Thomas Joseph Anessi
Kevin Barnard
Byron Bishop
Burns & McDonnell
Thomas Cain
Alseny Diop
Dr. Kulanand Jha
Michelle Manwarren
Kojo Mensah
Gerald L. Miller
Ceara Parks
David Rennie
Karim Riad Saadeddine
Philip Stanley Trew
Kathleen L.O. Yee

We'd Love to Hear From You!

If you have news to share in the next issue of *Communiqué*, please contact us:

**334 Carson Engineering Center
202 W. Boyd St.
Norman, OK 73019-1024
or cees@ou.edu**



The UNIVERSITY of OKLAHOMA
Gallogly College of Engineering
School of Civil Engineering and Environmental Science

334 Carson Engineering Center
202 W. Boyd St.
Norman, OK 73019-1024

Non-Profit
Organization
U.S. Postage
PAID
University of
Oklahoma

The Vision of the School of Civil Engineering and Environmental Science

“Through a community of scholars committed to excellence in research and teaching, the vision of CEES is to provide our students with the technical education and critical-thinking skills needed to lead the country in addressing the complex infrastructure and environmental problems facing today’s society.”

For more information contact:

The University of Oklahoma
School of Civil Engineering and Environmental Science
334 Carson Engineering Center
202 W. Boyd St.
Norman, OK 73019-1024

(405) 325-5911 | cees@ou.edu

www.cees.ou.edu

The University of Oklahoma, in compliance with all applicable federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, sex, sexual orientation, genetic information, gender identity, gender expression, age, religion, disability, political beliefs, or status as a veteran in any of its policies, practices or procedures. This includes, but is not limited to: admissions, employment, financial aid and educational services. Inquiries regarding non-discrimination policies

may be directed to: Bobby J. Mason, University Equal Opportunity Officer and Title IX Coordinator, (405) 325-3546, bjm@ou.edu, or visit www.ou.edu/eoo. This publication, designed and printed by OU Printing, Mailing and Document Services, is issued by the University of Oklahoma School of Civil Engineering and Environmental Science. 3,000 copies have been prepared and distributed at no cost to the taxpayers of the State of Oklahoma.