CIVIL ENGINEERING NEWSLETTER

UNM

FALL 2016 • ISSUE 6 • CIVIL.UNM.EDU

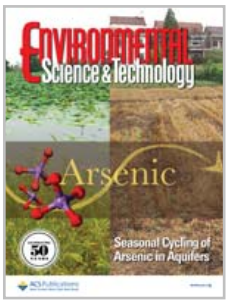
MESSAGE FROM THE CHAIR

At UNM Civil Engineering (CE), we continue to grow and establish ourselves as the flagship CE department in New Mexico with research excellence and a student-centered focus. Our Master of Construction Management degree is the first UNM School of Engineering degree offered 100% online. Our faculty are participating in leading edge research and collaborating with colleagues nationwide. With the creation of the UNM Resilience Institute led by UNM CE, resilience has become a focal research area. The quality and diversity of our research is validated by our significant growth in research expenditures to $5.8M. We are indebted to the continuous support of our alumni, which enabled UNM CE to dispense $150,000 of scholarships in Fall 2016

Mahmoud Taha, Professor and Chair, mrtaha@unm.edu

JOSE CERRATO RESEARCH APPEARS IN *SCIENCE*

José Cerrato, Assistant Professor in CE, participated in a research study using a photosynthetic device for the efficient production of usable hydrocarbon fuel from atmospheric carbon dioxide, published in the prestigious journal *Science* in July 2016. He is the lead PI of the E-H2O Research Group (eh2o.unm.edu). E-H2O investigates biogeochemical processes at the interface of water and energy that affect the cycle of metals and radionuclides in natural and engineered environments. Postdoctoral researchers, graduate and undergraduate students utilize microscopy, spectroscopy, aqueous chemistry and molecular biology tools in their studies. Their research has been published in *Environmental Science & Technology*; one study investigated metal stability in the Animas River following the Aug. 2015 Gold King Mine spill. Dr. Cerrato's research on the effect of wildfire ash on water quality was featured in Royal Society of Chemistry's: Emerging Investigators 2016, in *Environmental Science: Processes & Impacts*.



DOCTORAL STUDENT WINS SECOND PLACE IN POSTER COMPETITION

Shreya Vemuganti, PhD student in Civil Engineering, won 2nd place at the graduate student poster competition at the American Railway Engineering and Maintenance of Way Association (AREMA) Annual Conference and Exposition in Orlando, Florida on August 28, 2016. The poster presented was tilted, "Survey about Bottom Abrasion of Prestressed Concrete Ties," by Shreya Vemuganti and Fernando Moreu. In the photo, from left: Dr. Fernando Moreu, Assistant Professor; Shreya Vemuganti, PhD student; Piyush Garg, graduate student; and Jose Alberto Gomez, graduate student.

LOBOS STUDY CONSTRUCTION IN ROME

14 UNM Seniors and Graduate students from Civil Engineering, Construction Management, Architecture, and Art spent two weeks studying the history of construction, sustainability, and building restoration in Rome, Italy. Led by Dr. Mark Russell and Prof. Michael Gonzalez, the course looked at Rome from the standpoint of construction techniques applied during the Imperial Era over 2000 years ago, then progressed to Renaissance construction methods, and concluded with the impact of World War II and modern sustainability measures.

MCM DEGREE NOW COMPLETELY ONLINE

UNM launched its online Master's in Construction Management program this fall, offered through the Civil Engineering Department. The degree is designed for individuals working in all types of construction including residential, commercial, industrial, highway, and heavy construction. Totally online, enrollment in the program can begin any time of the year, as courses are taught in eight week modules. There is no exit exam, and up to 12 credits can be shared with the MBA program at UNM. Web: http://civil.unm.edu/programs-and-degrees/graduate/master-of-construction-management.html.

Upcoming Events

- 54th Annual Paving & Transportation Conference
  January 4-5, 2017
  Albuquerque, NM
- Second UNM Resilience Colloquium
  February 2017
- ASCE Rocky Mountain Student Conference
  April 6-8, 2017

BUILDING RESILIENT COMMUNITIES IN NEPAL

Resilience has become a research area for the Civil Engineering Department with the creation of the Resilience Institute. Partnering with UNM4Nepal, several students and faculty traveled to a rural earthquake-impacted village in Nepal in June to build a women's community center designed using a resilience approach. The earthbag circular design was developed in two graduate-level special topics courses titled Building Resilient Communities and Designing Resilient Communities during the 2015–2016 academic year. The design approach also included involvement from CE160 Intro to Civil Engineering students. The holistic design combined engineering principles, research, and resilience theory to develop a sustainable, earthquake-resistant, locally-sourced structure.

3RD ANNUAL UNM-bimSMART FOUNDATION SUMMIT

The Department co-hosted the 3rd annual UNM-bimSMARTfoundation Summit on September 30, 2016 with a full-day of new presentations, panel discussions, and collaborative sharing along with expanding the event to have a more regional academic flare. Included were current and future vision and uses of BIM theories and practice in the Architectural, Engineering, Construction (AEC) industries and academic research with presentations by faculty participating from Arizona State and Colorado State universities. The event had four new sponsors and eight sponsors rom last year's event and was attended by over 120 representatives from industry, government, academia, civil engineering, architecture, local community colleges, local BIM 505 user's group, and high school students from the ACE Leadership Program. The Summit was deemed an outstanding success by the attendees and many sponsors committed to return and support next year's event. The event will expand to by increasing additional regional university participation of the event and help bring additional experts to include presentations and discussion concerning the body of knowledge on which we (AiC) are currently working.

DISTINGUISHED LECTURE SERIES

September 14, 2016, Dr. Gabriel Eckstein, from Texas A&M University School of Law, gave a graduate seminar titled "Water Scarcity, Challenges and Opportunities: Lessons from Israel." The presentation discussed the methods, techniques, and approaches to water resources that have enabled Israel to survive in a desert environment, and thrive where others have failed. It also presented lessons the U.S. and other nations might take from Israel's experiences. Dr. Eckstein is a Professor at Texas A&M University School of Law who serves on the Graduate Faculties of the Texas A&M Water Management & Hydrological Science program and the Texas A&M Energy Institute. He also directs the International H2O Solutions, LLC, and the non-profit International Water Law Project, serves as an Associate Editor for Brill Research Perspectives: International Water Law, and on the Editorial Board of the Journal of Water Law, is an executive board member of the International Association for Water Law, and serves as a counsel with the law firm of Sullivan & Worcester.

Want to learn how to best support the CE Department?
Your support is the key in our quest to attract and retain the best students and faculty.
Call Betty Karlsson, Sr. Director of Development, 505-277-0230 or email betty.karlsson@unmfund.org.
To donate online, https://www.unmfund.org/fund/civil-engineering/

Department & Student News

Featured Graduate Student

Mahnaz (Razieh) Nadafian is pursuing a Ph.D. in Transportation Engineering under Dr. Rowangould's supervision after earning a master's degree in Urban Planning in 2013. Her research focuses on the role of metropolitan transportation planning in the creation of more sustainable transportation systems. Currently, she is working on an Environmental Protection Agency (EPA) project to show how different combinations of transportation and land use policies affect population exposure to toxic emission from transportation. She received the Steven Mitchell Fellowship in 2014 and the Linda E. Jennett Scholarship in 2015.

Featured Undergraduate Student

Jeremiah Leyba, an undergraduate majoring in Civil Engineering, is part of Dr. Taha's research team. After graduation in May 2017, he will pursue an MS degree in Civil Engineering, emphasizing structural mechanics. He is currently the President of Chi Epsilon, the Civil Engineering honor society; Vice President of the ASCE UNM Chapter; and Captain of the Student Steel Bridge team for the ASCE annual conference and competition.

CE Facts at a Glance

Number of Faculty	17
Number of Undergrads	283
Number of Grad Students	105
Number of Adjuncts	8

Annual Research Expenditures
FY 2015-2016
$5.8 Million

Departmental Scholarships
$150,000 Awarded to
Undergraduate and Graduate
Students