



**NORTHERN ARIZONA UNIVERSITY**  
*College of Engineering, Forestry & Natural Sciences*  
 Department of Civil Eng., Construction Management, and Environmental Eng.  
 PO Box 15600, Flagstaff, Arizona 86011



1EGR1128

Non-Profit Org.  
 US Postage  
 PAID  
 IMS 85726

RETURN SERVICE  
 REQUESTED



**NORTHERN ARIZONA UNIVERSITY**  
*College of Engineering, Forestry & Natural Sciences*  
 Department of Civil Engineering, Construction Management, and Environmental Engineering (CECMEE)

*"Creating leaders and solutions for the built and natural environments."*



### A NOTE FROM THE CHAIR - Spring 2012

Dear Friends,

We've had a busy year in CECMEE! I'll keep my notes short, and let the news speak for itself in the following pages..... highlights of the past year include:

- Our CM program had an accreditation visit this past fall; while we are still awaiting formal approval, it looks like we have a green light for another 6-year accreditation cycle from the ACCE, the CM accrediting board.
- We've completed significant program assessment work. All three programs of study (CM, CE and EnE) have been overhauled with significant changes coming in 2012-2013.
- Last year's faculty searches were successful! Meet Robin Tuchscher and Alarick Reiboldt, our two newest faculty members. And, we are currently searching for a new CM tenure-track faculty member to replace Greg Ohrn who retired last year.
- CECMEE continues to lead the way in international service projects. Read about winter break work with EWB (Engineers Without Borders) in Ghana and Assistant Professor of Practice Alan Francis' project in Mainpat, India.

In closing, NAU has unleashed a new website and we are, of course, a part of it. Find us now at: <http://nau.edu/CEFNS/Engineering/> and pick a program.

Sincerely Yours,

*Bridget N. Bero*

Bridget N. Bero, Ph.D., P.E.  
 Chair and Associate Professor  
 Bridget.Bero@nau.edu

### WELCOME NEW CECMEE FACULTY

**Robin Tuchscherer**, Assistant Professor, joins Assistant Professor Josh Hewes as our second structural expert. Robin is from Oshkosh WI and received his Masters and Doctoral degrees from the UT-Austin. After working more than seven years in the private sector as a structural engineer, he finds both teaching and the Flagstaff lifestyle ideal. Robin's teaching goals are to bring real-world experience into the classroom. Robin is teaching Mechanics of Materials and Structural Analysis I & II this year, and is excited to help students attain their educational goals while having them help him grow as a professor.



*Robin and his wife Nicole and daughter Stella welcome new son Isaac – it was a very busy first semester for Robin!*




*Photo by Ericka Bura*

**Alarick (Lar) Reiboldt**, Lecturer, becomes the CENE programs' first Lecturer. While Lar is new to a full-time faculty position, he

is not new to NAU, having been here since 1997. He received both his BS and MEng degrees (env. eng.) from NAU. During his master's work, he was a teaching assistant and lab manager for the department. Upon graduation, he worked as a research engineer and taught the mechanics of materials lab. He briefly joined the private sector, working for the Forest Energy Corp. in Show Low, but was lured back by his love of teaching and Flagstaff. He finds teaching to be rewarding and has a sense of accomplishment when his students are successful. This year he is teaching Statics, the CM Soils course, and the Geotechnical Engineering Lab.

### NEWS BRIEFS

 **New 2012-2013 Programs of Study.** Freshman entering this fall will see big changes in their 8-semester program of study. These changes will be in the Fall 2012 Catalog; highlights of the changes are:

- Our CENE "water sequence" was realigned; Fluid Mechanics has been eliminated and our Hydraulics course has been upgraded to Water Resources 1. A new 2-credit lab follows with more modeling and field work. Hydrology is now Water Resources 2; revised content includes material on subsurface hydrology. Finally, Sanitary Engineering is now Municipal Utility Engineering, which includes content in municipal utility water & wastewater system design and layout.
- Basic biology has been eliminated in the EnE program; its replacement is our CENE Biotechnology course which had been an elective. This course provides basic microbiology and advanced biological engineering concepts.

*- Continued inside*



#### Life Outside of Engineering School:

On Jan 14-15, 2012, environmental engineering student Nathaniel Lail participated in the "Tough Mudder" competition at the Mesa Proving Grounds. This 12.5 mile long course had 28 obstacles including ice swims, mud crawls, and giant wall climbs; Nathaniel finished in 1:45, well under the 3 hour average. The race has contributed over \$2.5million to the Wounded Warriors Project benefitting veterans returning from the battlefield. Photo by Rasha Gardner.



- The CM program is changing its approach to laboratory learning. Labs associated with five courses (Soils, Electrical, Mechanical, Concrete, and Masonry) have been eliminated and the lecture content is condensed to three courses (Soils, Elect/Mech Systems, Concrete/Masonry Constr). The labs are replaced with three new "integrated" labs where sophomore, junior and senior students are in the same lab where sophomores build mockup structures, juniors provide the supervision and submittals, and seniors provide the project management, thus better emulating a real construction site.

**Building a better doghouse.** The Design4Practice sequence is being revised beginning this year. While EGR186 (the interdisciplinary intro course) and CENE476/486C (Capstone) are staying the same, the CENE department now is teaching the sophomore level course on its own. In this fall's first pilot of the new course, CENE286, civil and environmental students designed and built doghouses out of newspaper, reverse-engineered campus projects such as the green roof of the ARD building, culverts in Sinclair wash, a parking garage and the ARD retention basin. They also discussed the far-reaching social, economic, health, political and environmental impacts of engineering projects throughout history, such as the Great Wall of China, Roman aqueducts and the U.S. Interstate System.



Civil engineering student Jonathan Brusnahan tests a doghouse for strength with advice from Steven Tallas in the new CENE286. Photo by Bruce Connolly.

**Promoting Excellence in Outreach.** The CECMEE Department is sponsoring and hosting the ACCE Industry Advisory Board (IAB) Best Practices workshop this February in Phoenix. 90 attendees, including members of our own CENE and CM IABs, are expected to attend.

## FACULTY NEWS

EnE professor Willie Odem and EnE alumni Justin Ramsey and Doug Slover recently finished a drinking water assessment and preliminary design project for the San Juan Southern Paiute Tribe in northern Arizona.

CE Professor Ed Smaglik presented a paper "Impact of Monetary Penalty Driver Feedback on Workzone Speed" at the 91st Annual Meeting of the Transportation Research Board of the National Academies in Washington DC in January.



Undergraduate research assistants Cready Smith and Zach Davis calibrating the sign as part of the project. Photo by Ed Smaglik.

EnE Professor Paul Gremillion is on sabbatical this year working as a consultant to the United Nations International Atomic Energy Agency to complete previous work and is collaborating at the University of Arizona to assess historical sedimentation patterns in two western Arizona reservoirs,

Alamo Lake and Lake Havasu; he is also evaluating historical patterns of nutrient loading and biological productivity in Watson Lake, Prescott, Arizona.

CECMEE says goodbye to retiring professors Greg Ohrn (CM) and Bill Auberle (EnE). Greg is currently managing quality control for the Panama Canal. Bill, as one of the original founders of our EnE program and the NAU Institute for Tribal Environmental Professionals, leaves a huge legacy and big shoes to fill. Bill still lives in Flagstaff and can occasionally be coerced into imparting his sage-like wisdom to department chair Bero.

CM Professor John Tingerthal will be presenting a paper "Visualizing Construction Curriculum" at the 48th Annual International Conference of the Associated Schools of Construction in Birmingham, England in April. He's also had a paper "Using Self-Assessment in an Introductory Structures Course for Construction Managers" accepted at the 119th ASCE Annual Conference & Exposition in June in San Antonio, TX.

CM Professor Tom Rogers was recognized by the Society of Value Engineers for his teaching and co-authoring a companion text in value engineering; he received their 2010/2011 International Communicator of the Year award.

In December 2011, CM Professor of Practice Alan Frances led a team from the college to the Mainpat Tibetan refugee camps in northern India as part of an interdisciplinary humanitarian relief mission. Students, faculty and private volunteers delivered basic medical, dental, veterinary, and engineering services to a large underserved population. Under the supervision of Alan, mechanical engineering students Josh Drake and Lief Kirsch raised funds and designed an expandable renewable power system for the primary monastery in Mainpat.



Charlie Schlinger's Spring CENE383 Geotechnical Engineering tour to a Munds Park ADOT project. Photo by an unnamed construction worker.

## STUDENT ACTIVITIES

CENE Senior Capstone Projects 2012 are underway. With exploding student numbers comes more capstone projects! We have 16 teams this year, including our first all-female Concrete Canoe team. For full project details, check out: <http://www.cefns.nau.edu/Research/D4P/ProjectList.php>

- NAU Solar Array Site Development
- Roatan, Honduras Waste Water Treatment
- Snowpack Watershed Modeling
- Impact of Forest Thinning on Snowpack
- Flagstaff YMCA Nature Trail
- Purina Facility Water Re-use Project
- ASCE Pacific Regional Conference – Concrete Canoe
- ASCE Pacific Regional Conference – Steel Bridge Teams
- NAU Pedestrian/Bike Traffic Evaluation
- Warmhouse Beach Waste Site, Teams 1 & 2
- Residential Covered Patio Design
- Design of Elevated Roadway and Culverts, Camp Verde
- Bridge Design, Camp Verde
- New Mexico State University's WERC Environmental Engineering Competition: Green Reverse Osmosis Pretreatment

On Dec 17, 2011, engineering students Matt Petney and Anna VanMeter accompanied anthropology student Kate Sanderson and geology student Max Walborn on a month-long trip to Yua, Ghana where they continued previous work on a water park for the community and installed two drip irrigation systems. The work on the water park, which provides water to the community, involved removing a decaying



Matthew Petney works with local contractors on the support structure for the new water plaza. Photo by Anna VanMeter.

structure, replacing solar panels on a lower support structure and adding a mechanical pump. A lively blog on the project can be found at: <http://ewb-naughana.blogspot.com/>

Alumni, remember the dirt path behind the Engineering building? It is dirt no more - CM students poured a new concrete walkway under supervision of Lecturer Kathleen Viskocil as a service project to NAU Capital Assets.

As of Spring semester 2012, CECMEE is one of the largest departments in the college with major counts at: 283 CE; 147 EnE; 195 CM. Of these, 88 are international students with about half from the countries of the Middle East and half from China. 83 students graduated in Spring/Fall 2011: 47 CM, 14 EnE and 22 CEs.



The Fall 2011 CM graduating class in their graduation caps. Photo by John Tingerthal.



Transportation 101 in Ghana. Photo by Anna VanMeter.

## ALUMNI SHOWCASE

2009 CE Grad Erik Hornaday is working as a tunneling engineer for Vegas Tunnel Constructors. His current project is for the Southern Nevada Water Authority Lake Mead Intake Tunnel No. 3. His work includes collaboration with the field forces, assisting in the planning and tracking of project progress, estimation of material quantities, coordination of deliveries for the concrete batch plant, controlling the inventory and storage of explosives, and preparing submittals (such as drawings) to the project owner. He says that "This project has allowed me to practice my skills while learning about construction and the implementation of design engineering." He recently hosted Dr. Charlie Schlinger to tour the site.



Alumnus Erik Hornaday in the Lake Mead Intake Tunnel. Photo by Charlie Schlinger.

If you'd like to be featured in a future newsletter, please contact [Bridget.Bero@nau.edu](mailto:Bridget.Bero@nau.edu).

Below: The 2011 Concrete Canoe and the NAU ASCE student chapter. The canoe was raced at UCLA at the Southwest Regional ASCE Conference in March 2011. The canoe finished 7th out of 18 schools while the steel bridge team was 10th and won an award for best display.



## Stay in Touch! **LinkedIn**

It's easy - don't forget to sign up for either our NAU-CM or NAU-CENE LinkedIn pages - or both! The CM group has 292 members including alumni, construction industry leaders and program supporters; the CENE group is just starting up. This is a great way to stay connected with former classmates, post job openings and connect with other professionals. Contact [Bridget.Bero@nau.edu](mailto:Bridget.Bero@nau.edu) or [John.Tingerthal@nau.edu](mailto:John.Tingerthal@nau.edu) for more information.

## Giving to CECMEE

Directing a donation to the CECMEE Department is a great way to make sure your dollars directly help the programs you care about. You can specify which program (CM, CENE) or activity (student projects, faculty development, or capital campaign) you want to support. Contact Bridget Bero ([bridget.bero@nau.edu](mailto:bridget.bero@nau.edu)) or Steve Mead ([stephen.mead@nau.edu](mailto:stephen.mead@nau.edu)) or online at <http://www.nau.edu/CEFNS/Partner/Giving/>.