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Calendar

MAR 7, Wed – ITE Bake Sale, Owen Atrium, 9am-3pm.

MAR 12, Mon – CCE newsletter on vacation; returns 3/19 for Finals Week, yay.

MAR 12, Mon – CE 418 Capstone Oral Presentations, Kiewit Conference Room, all day.

MAR 12, Mon – Science Pub, "[Sweetspot for Biofuels](#)." Old World Deli, 6pm.

MAR 12, Mon - [Finals Prep Workshop](#), 150 Batcheller Hall, 6pm. Workshop is free for Engineering students and food is provided!

MAR 15, Thurs – Green Building Materials Poster Presentations, Kearney Atrium, 4-6pm. Light refreshments.

Seminars

MAR 6, Tues – **Geotechnical** Faculty Candidate Presentation, 311 Kearney Library, 1-2pm. Open to all. [Abstract here](#).

MAR 8, Thurs – **Water Resources** Faculty Candidate Presentation, 311 Kearney Library, 1-2pm. Open to all. [Abstract here](#).

MAR 14, Wed – "Timber-glass Composite Structures: Technology and Products," presented by José Pequeno, Architect and Assistant Professor, Portugal. 312 Kearney Hall, 2pm. [Abstract here](#).

MAR 14, Wed - **Water Resources** Faculty Candidate Presentation, 311 Kearney Library, 1-2pm. Open to all. [Abstract here](#).

MAR 16, Thurs - **Water Resources** Faculty Candidate Presentation, 311 Kearney Library, 1-2pm. Open to all. [Abstract here](#).

In the News

[Aftershocks of Japan disaster being felt in US earthquake planning](#) (PhysOrg)
"Just in Oregon we've got a billion dollar problem, but we don't have a billion dollars," said [Scott Ashford](#), professor and interim dean of the College of Engineering at Oregon State University, and one of the international engineering experts who toured the affected area in Japan last year shortly after the disaster.

['We've got a billion dollar problem but we don't have a billion dollars'](#) (KVAL)
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[Scientists report back from Fukushima exclusion zone](#) (Nature)
Finding reliable tsunami marks almost a year after the disaster was a challenge, says [Harry Yeh](#), a civil engineer at Oregon State University in Corvallis, who has been

studying tsunami impacts for 20 years and was a member of the team. In places, the tsunami had wiped out almost everything that stood.

Opportunities

University Graduate Laurels Block Grant Scholarship (UGLBG) is based on academic merit and/or contribution to diversity in graduate education. This funding may be used for the tuition portion of your education only (not for a stipend or for additional student fees). Selected students may receive a tuition scholarship for up to three quarters in their first year of graduate school although lower funding amounts may also be awarded. Keep in mind that receipt of this scholarship will also affect your student loan eligibility. Students already receiving funding through a GTA, GRA or other School Fellowship are NOT eligible for the UGLBG Scholarship. Submit completed form to Cindy Olson in 101 Kearney Hall by March 15, 2012. [Application form here](#) (pdf).

Prof Rob Bertini (PSU) is teaching a summer class on **multimodal transportation** that takes place in the Netherlands, June 29 – July 16, 2012. Deadline to register is March 16. [Details here](#).

Summer Undergraduate **Transportation Scholars Program** - Texas A&M University. Know that while the brochure indicates that the application deadline is March 9, we will accept reference letters after the deadline. [Details here](#).

Volunteer at Dozer Days, May 19-20 at CEMEX Fisher's Quarry, WA. Dozer Days is geared towards bringing hands-on construction activities to students. They have many 4-hour volunteer time slots open. This is a great opportunity to get involved in a community activity while giving back to the industry! To register as volunteer, please visit our website, www.nutterfoundation.org and fill out a volunteer registration. The deadline to register as a volunteer is April 30.

Student Chapters

MAR 7, Wed – **ITE Bake Sale**, Owen Atrium, 9am-3pm. Everyone needs a snack in between classes, so why not support the ITE Student Chapter AND have a delicious treat at the same time! If you are interested in helping out by baking or selling goodies, please contact [Megan Mecham](#). If you aren't able to purchase treats or volunteer, please spread the word and tell your friends & classmates to stop by!

MAR 7, Wed – **ASCE Speaker Meeting**, 212 Kearney Hall, 6pm. "What to do when things go wrong," presented by Lee Eick from CH2M Hill. Food and drinks provided.

CE Junior Field Trip Recap

On February 13-14, 95 members of the Civil Engineering junior class visited Portland on their annual field trip. The two-day trip spent time visiting active construction sites, facilities, and offices of public and private infrastructure entities in the Portland area.

The trip started with visits to two Hoffman project: 1) the reconstruction of the Oregon DOT (Salem), and 2) a new High School (Sandy, OR). The tour moved on to two ODOT construction projects. The first was the I-5/Iowa project south of downtown which will result in a reconstructed bridge on I-5. The second was the OR-213 reconstruction near I-205 and managed by the City (Oregon City). The first day finished with a visit to the wastewater treatment facility at Hillsboro run by the Clean Water Services.

The second day began with visits to the Tri-Met transit bridge across the Willamette

River in Portland. This project is being constructed by Kiewit as part of the Portland-Milwaukie light rail line.

After the Kiewit visit, the students broke into small groups and visited a variety of public agency engineering offices and facilities, including Port of Portland (PDX), City of Portland – Engineering, PGE, TriMet/Stacy-Whitbeck, ODOT, Multnomah County – Bridge, and USACE.

After lunch on day two, the students reshuffled themselves and visited private engineering offices, including CH2MHILL, HDR, Degenkolb, DKS, Kittelson, KPFF, Murray-Smith, David Evans and Associates, BergerABAM, PB, and Hoffman Corporation.

Faculty and staff planned the trip and helped with the logistics. Many thanks to all of the stakeholders that participated! [See photos of the field trip here.](#)

Jobs

Undergraduate Summer Internship in Transportation, University of Texas at Austin Advanced Institute. Undergraduate junior and seniors who have an interest in gaining firsthand experience conducting research on [transportation](#) problems are invited to apply. The objectives of the Advanced Institute include enhancing the quality, number, and the diversity of professionals entering the Transportation sector, and receives funding through the U.S. Department of Transportation. Deadline to apply is March 16. [Details here.](#)

Spring Classes

CE505 - Construction Site Operations and Systems Engineering, [details here.](#)

Geotechnical Faculty Candidate Presentation

“Multiscale and Multiphysics Processes in Geotechnical Engineering”

presented by Matt Evans, 3/6

Abstract:

Soils are inherently complex structures: they are multiphase, nonlinear, inelastic, heterogeneous, and anisotropic. Nonetheless, their behavior is often modeled using significant simplifying assumptions. While these assumptions may be appropriate in some cases, they can result in models that fail to predict emergent phenomena or capture the inherent interplay between phases (air, water, solid), processes (thermal, hydraulic, mechanical), and scales (particle, specimen, design) that fully describe material behavior. For example, the granular structure of a soil plays a dominant role in the mechanical and thermal response of the soil mass to external loadings and can be used to explain concepts such as nonlinearity, inelasticity, and stress memory. This work explores soil response through analysis of practical applications using a combination of discrete models and laboratory experiments.

The first part of the presentation will focus on the mechanical response of granular assemblies. The ability of discrete element method (DEM) models to predict strain localization in sands will be demonstrated. The model is then used to examine the mechanical behavior of unbound aggregate materials (e.g., the aggregate base course beneath an asphalt layer) as a function of their grain size distributions. Similar responses at the macroscale are shown to mask significantly different microscale behaviors that may have implications to design.

The second part of the presentation is a discussion of the thermal, hydraulic, and mechanical behavior of road sections with and without geosynthetic reinforcement. Specifically, the effects of partial saturation and the hydraulic properties of the geosynthetic materials are investigated.

Results from this work show that geosynthetics emplaced in road sections composed of partially saturated soils have multiple – and sometimes conflicting – effects on system response.

The presentation will end with a brief discussion of the thermal properties of granular mixtures. The effects of mixing fraction and granular structure on thermal conduction are presented. Specific applications to percolation theory and energy geotechnics (e.g., ground source heat pumps, waste isolation) are considered.

Bio:

Matt Evans is an Assistant Professor in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University (NCSU). He received Ph.D. (2005) and M.S. (2002) degrees in Civil Engineering from the Georgia Institute of Technology, a BSCE from the University of New Mexico in 1997, and a B.A. in Physics from the University of Virginia in 1993. Prior to pursuing his graduate degrees, he was an Engineer with GeoSyntec Consultants in Huntington Beach, CA for three years. His research interests include granular mechanics, energy geotechnics, image processing and analysis, soil-continuum interfaces, and the mechanics of partially saturated soils. Matt is the webmaster for the United States Universities Council for Geotechnical Education and Research (USUCGER) and faculty advisor for the NCSU chapter of Engineers Without Borders (EWB). He currently serves as Vice Chair of the ASCE Geo-Institute Soil Properties and Modeling Committee. He received the 2005-2006 George F. Sowers Outstanding Graduate Student Award from Georgia Tech. His graduate students have won multiple student paper competitions and awards for their work.

Water Resources Faculty Candidate Presentation

“Participatory Design for Sustainable Water Management: The Challenges of Definition and Judgment in Optimization”

presented by Meghna Babbar-Sebens, 3/8

Abstract:

Social preferences and attitudes are central to achieving sustainability of water resources. However, the ambiguity, non-stationarity, and subjectivity in these factors often make them difficult to identify and define. Methods for participatory design, planning, and decision making often struggle to incorporate stakeholder beliefs, values, and perceptions. For example, it is a common approach to conduct offline, asynchronous interviews with stakeholders and then construct quantitative utility functions to define their various subjective goals and constraints within the search process. The use of such static utility functions to solely represent stakeholder preferences can lead to premature and/or erroneous solutions, thereby, leading to the challenge of judgment of solution quality and acceptability. Novel interactive optimization approaches can mitigate these deficiencies through the direct inclusion of real-time human participation within the search process. By synchronously incorporating dynamic human thought processes, interactive optimization provides more robust and relevant solutions than the mere algorithmic “thinking” of a computer. Results from implementation of innovative interactive optimization approaches developed by the author and her collaborators in two case studies (related to ground water monitoring design and sustainable watershed restoration problems) indicate the benefits of extending their application to other sustainability problems involving the intersection of man-made, environmental, and societal systems.

Bio:

Assistant Professor, Indiana University-Purdue University Indianapolis, IN

Water Resources Faculty Candidate Presentation

“Multi-sensor Multi-platform High Resolution Precipitation Estimation for Hydrologic Modeling and Applications”

presented by Dr. Ali Behrangi, Jet Propulsion Laboratory, California Institute of Technology, 3/14

Abstract:

Precipitation is a key input for hydrometeorological modeling and applications. In many regions of the world, ground-based measurement of precipitation is either sparse in time and space or nonexistent. Therefore, it has been recognized that satellite-based precipitation products provide

critical information needed for hydrologic studies worldwide. The growing demand of hydrologic community for higher resolution precipitation data has resulted in development of several remotely sensed precipitation products. This presentation reviews the status of global high resolution precipitation estimation from space and proposes a newly developed algorithm to retrieve very high resolution (0.08 degree lat/long every 30 minutes) precipitation data from multi-sensor multi-platform information. To continue, through a case study and uncertainty analysis at basin-scale, the performance of satellite precipitation products for stream flow simulation is discussed and compared with ground observations. The hydrologic model used in this study is the National Weather Service (NWS) Sacramento Soil Moisture Accounting Model (SAC-SMA). Future extension of this work using physical based models will be discussed.

Water Resources Faculty Candidate Presentation

“Improving water supply sustainability using many-objective water portfolio planning”

presented by Joe Kasprzyk, Penn State University 3/16

Abstract:

Climate change and population growth require portfolios of adaptation strategies that can ensure a sufficient amount of water supply over long planning horizons. These strategies require a suite of multiple complex planning objectives that are difficult or impossible to evaluate using traditional cost-benefit analysis. Traditional methods also fail under conditions of deep uncertainty, in which decision makers cannot agree on the full range of risks to their system or the associated probabilities of these risks. In contrast, a many-objective approach to water resources planning provides sets of high-quality planning alternatives that are robust to future deep uncertainties. Within this context, I will introduce two recent innovations: de Novo planning and many-objective robust decision making. De Novo planning iteratively updates decision maker's problem conceptions to incorporate new learning about their systems. Many-objective robust decision making extends this treatment to explore the impact of key deep uncertainties on the planning process, such as demand growth or the likelihood of droughts. Both frameworks are demonstrated using a risk-based water portfolio planning problem in the Lower Rio Grande Valley of Texas.

The presentation also discusses my future research program: to address diverse problems in the water resources domain for testing hypotheses about decision making under uncertainty. In the near term, I plan to expand my previous robust decision making work to support a pilot study for the California Department of Water Resources. A second project will test our decision support tools in the operational context, interacting directly with practicing water managers. The project would test hypotheses on how to best visualize tradeoff solutions, pursuing collaborations with the Institute for Water and Watersheds and the Program in Water Conflict Management and Transformation at OSU. The long-term goal of the research is to improve sustainability of regional water supplies in the Pacific Northwest. Future projects will build strong collaborations with faculty at OSU with expertise in modeling hydraulic systems, as well as a network of researchers internationally.

Go Beavs!

Forward newsletter submissions to nancy.brickman@oregonstate.edu by **Friday** each week. Prior newsletters archived at <http://cce.oregonstate.edu/news/>