CEE News

A Note from CEE Department Head, Dr. Richard Palmer

As the new Head of Civil and Environmental Engineering I want to introduce myself to all of the department students. I arrived on campus at the end of March. I taught at the University of Washington (UW) in Seattle for the past twenty-eight years. I received my Ph.D. from The Johns Hopkins University and my Masters from Stanford University. I grew up in Arlington, Texas, and got my undergraduate degree in Civil Engineering at Lamar University. My research area is related to water resources and drought management. Specifically, my research has focused on water supply planning, hydropower production, the impacts of climate change on water resources, and the use computer models to aid in the negotiation of water conflicts. I have been fortunate to have had research projects that have taken me all over the US and to Korea, Japan, Egypt, Mexico, Scotland and Spain. I am very glad to join the outstanding faculty here in CEE at UMass. As you know, you have a very committed group of teachers who are also some of the leading researchers in civil engineering in the country. These are very exciting times. Our undergraduate enrollments are growing, demand for our graduates has never been greater, and our department is experiencing a major influx of new faculty. During the past three years seven new faculty have been hired. We are in the process of hiring three additional faculty this spring, which will bring our total numbers to 25. Although there are many new faces in the department, you will find the same commitment as in the past to making CEE an outstanding undergraduate and graduate department where everyone student can grow to their full potential. I look forward to working with all of the student groups next year, including ASCE, Chi Epsilon, and Engineers Without Borders. Please look for articles from me in THE BRIDGE in the future and feel free to come by and introduce yourselves.

Also, please read the note on the next page from Dr. David Reckhow as he concludes his term as Interim Head. Dr. Reckhow did an outstanding job in guiding the department over the last eighteen months and we all owe him a large debt of thanks.
A Note from Dr. David Reckhow

With the arrival of Dr. Palmer, my term as Interim Department Head comes to a close. It has been a pleasure to work with the staff in CEE’s main office over these past 15 months, and an honor to serve the students and faculty of CEE. The Department Head sees quite a bit of the day-to-day activities in CEE. For me it has been an eye-opening and uplifting experience. It gave me a renewed appreciation for our talented student body, faculty and staff. Thanks to all for your support and thanks in advance for your patience during the ongoing transition. I hope you all recognize how fortunate we are to have someone of Dr. Palmer’s caliber as our new Department Head. Please introduce yourself to him if you haven’t already, and welcome him to UMass.

Panel Advising Chancellor on Environmental Issues
From the UMass online newsletter, In the Loop, 3/31/2008

A new, 10-member campus-wide panel has been established to advise the chancellor on a range of environmental issues, Joyce Hatch, vice chancellor for Administration and Finance, told the Faculty Senate March 27.

While many institutions have created advisory groups to formulate strategies for reducing their carbon footprints, Hatch said the Environmental Performance Advisory Committee (EPAC) has a broader mission that includes recycling, energy consumption, water conservation and sustainability. "Carbon neutrality doesn’t look at water," she said. "We’re trying to include all environmental issues."

The panel is chaired by Craig Ruberti of Environmental Health & Safety, who has been involved in tracking the campus’ carbon footprint for some time in preparation for the startup of the new Central Heating Plant, said Hatch.

Hatch said the campus has already made progress in reducing its water and energy use since 2004, when officials began tracking the results of a $42 million conservation and utility management contract with Johnson Controls. After more than three years, she said, water consumption is down 40 percent, steam use declined 24 percent and electrical consumption dropped 15 percent, even with the addition of four new residence halls last year. To date, the conservation efforts are generating about $5 million in savings annually, which will pay back the money borrowed to pay for the contract.

The other members of EPAC are Al Byam, director of Transit Services; Steve Goodwin, dean of the College of Natural Resources & Environment; Jim Cahill, director of Facilities and Campus Planning; Patrick Daly, director of Physical Plant; Brian Fitzpatrick, manager of EH&S Environmental Management Services; Susanne Hale, student representative; Josh Stoffel, president of Students for Environmental Awareness and Action; Scott Civjan, associate professor, Civil and Environmental Engineering; and Roger Rideout, professor of Music and chair of the Campus Physical Planning Committee.
STUDENT NEWS

ITE News (Institute of Transportation Engineers)

Faculty Advisor: Dr. Mike Knodler
President: David Hurwitz

Past Events:

Attended Conferences and meetings across the country:
- ITE Student Chapter Reception: 1/14/08, Washington DC
- VITITE Annual Meeting: 1/28/08, Barre, VT
- MAITE Student Research Symposium: 2/22/08, Boston, MA
- ITE Technical Conference: 3/08, Miami FL
- Trans. Research Board Annual Meeting: 1/08, Washington DC

Field Trips:
- Fuss & O’Neill

Professional Development Activities:
- Active Traffic Count Program
- ITE/TEP Seminar Speaker Series
- Recognition as Graduate Student Organization
- Resume Book
- Bulletin Board
- Chapter Newsletters

Community Service Activities:
- Mass Highway Department Adopt-a-Highway Program
- Clothing Drive for Amherst Survival Center
- Boston Society of Civil Engineers (BSCE) Thinkfest, 3/29/08
- Town of Amherst Speed Hump Evaluation

Upcoming Events:


Adopt-A Highway: The UMass ITE Student Chapter will be participating in a trash cleanup of a 2 mile segment of Rt. 116 in Amherst on April 19th, 2008.
ASCE News (American Society of Civil Engineers)

Advisors: Scott Civjan & Sergio Brena
President: Rob House

Past Events:
3/11/2008

"Tsunami Relief and the Hazards and Rewards of International Engineering".
A dinner/lecture by David Murphy, Sr. Project Manager, Tighe & Bond.
A joint meeting with Engineers Without Borders and the Western Massachusetts Branch of the Boston Society of Civil Engineers.

3/12/2008

UMass ASCE 2nd General Body Meeting, featuring Rebecca Sherer, P.E. of Tighe & Bond. Her talk focused on two projects; the Deerfield Academy Project and the Russell Biomass project, which involves the planning and permitting of a $150 million 50-MW power plant on the former Westfield Power Company Site in Russell, MA.

Upcoming Events:
4/4-4/5: Northeast Regional Steel Bridge Competition @ University of New Hampshire.
4/7: BSCES Student Night at MIT, with a lecture entitled “Saving Venice”
4/14: Freeman Lecture at MIT, sponsored by BSCES on "Singapore Marina Barrage”.
4/25: Northeast Regional Concrete Canoe Competition, Universite Laval, Quebec, Canada.
5/3: Habitat for Humanity. 9:00 am to 4:00 pm.

This fall, ASCE visited Fenway Park, home of the Boston Red Sox, to get an inside look at the renovations and new structures of the building.
REESEARCH NEWS
Conferences, Presentations and Publications

State DEP to Test Water Supplies For Drug Traces
(Excerpts from an article in the Lowell Sun; 03/12/2008)

LOWELL -- It's a new worry in our drinking water. Trace levels of sex hormones, antibiotics and ibuprofen. Experts say the levels of over-the-counter and prescription drugs found in drinking water from 24 major metropolitan areas nationwide are low. But even in small amounts, the chemical cocktail raises concern over what might happen to human cellular structure from prolonged consumption. While local treatment plants scrub water for germs, facilities aren't equipped, or required, to filter out trace pharmaceuticals. Bottled water also lacks standards. The federal standards for acceptable levels of pharmaceutical residue in bottled water are the same as those for tap water there aren't any. In your drinking water, the Massachusetts Department of Environmental Protection is launching an effort to test rivers, streams and reservoirs to determine drug levels and how to treat them.
"There isn't a lot of information on New England," said David Reckhow, a professor of civil and environmental engineering at UMass Amherst. Reckhow will take part in the yearlong DEP study looking at pharmaceuticals in 12 water sources. While he can't disclose testing locations, Reckhow confirmed that several are in Eastern Massachusetts. Ed Coletta, a DEP spokesman, did say the state agency will partner with national water-quality analysts, the U.S. Geological Survey and the Lowell Wastewater Treatment Plant to test raw water from the Merrimack River starting in May.

After a five-month investigation, the Associated Press reports that a variety of drugs -- from ibuprofen and antibiotics to prescription drugs and hormones -- end up in drinking-water supplies after getting flushed down toilets and washed down sink drains. An estimated 90 percent of pharmaceuticals in the environment come from consumers, AP reports.

While health effects from long-term exposure to pharmaceuticals in humans is uncertain, UMass Lowell professor Stephanie Chalupka said the effects on wildlife should be eye-opening. Scientific studies have shown that in the Potomac River basin, nearly all small-mouth bass have developed female sexual characteristics -- a result of endocrin disrupters (chemicals that mimic sex hormones) from pharmaceuticals in their environment.

A big problem is how people dispose of medications. "Nationally, it's a fairly common practice in health-care facilities, especially nursing homes, to flush pills down the toilet," Chalupka said. Part of DEP's effort to reduce pharmaceutical waste involves establishing a system that gives consumers an alternative for disposal.

Researchers estimate it could take up to two years before results of the water tests are made public. In addition to pharmaceuticals, scientists will also look for personal-care chemicals in water samples, including brighteners added to laundry detergents and perfume components that go into cleaning agents for household use.

Samples drawn from the Merrimack River nearly 10 years ago revealed barely noticeable traces of drugs, such as acetaminophen and codeine. The highest man-made compound present was caffeine. But the tiny amounts of pharmaceuticals present in drinking water, measured in parts per billion, don't seem to imply any kind of public-health threat at the moment, Reckhow said.

FACULTY NEWS

Professor Lutenegger and Professor Arwade to receive NSF Grant
Professor Lutenegger and Professor Arwade are receiving a $150,000 National Science Foundation grant to work on the project "Adaptive Use of Historic Truss Bridges."

This project seeks to increase understanding of the structural performance of historic truss systems and materials, erect a second historic truss on the UMass campus, and incorporate historic bridge rehabilitation and analysis in to the CEE curriculum.
Reckhow Team Studies Drugs in Drinking Supply

A team of researchers from our Civil and Environmental Engineering Department is currently studying the drinking water supply in areas across southern New England to determine if it contains measurable amounts of pharmaceuticals that treatment plants have failed to remove. The work is part of a $150,000 research project funded by the American Waterworks Association Research Foundation, the Massachusetts Department of Environmental Protection and participating public water utilities. Researchers in the Department of Veterinary and Animal Sciences are also assisting on this project as are engineers from Earth Tech, Inc.

Among other purposes, the research will analyze how well existing public water-purification systems filter out drugs. The study will also try to determine if the treatment systems removal all traces of endocrine activity in drinking waters when they removal the parent pharmaceuticals.

"We will be looking at a dozen drinking water utilities and the concentration of pharmaceutical and endocrine disrupters in them," says Dr. David Reckhow, a professor in CEE. "I think this is something important for us to look at and for scientists to research, to make sure the problem isn't serious." Dr. Reckhow says he doesn't expect to find high levels of pharmaceutical drugs, but he does think they will see trace amounts of common drugs like Ibuprofen and caffeine in some source waters. "There isn't a lot of information on the occurrence of these compounds in New England waters," says Reckhow.

The researchers will also look for ways to treat the water and remove the drugs. While municipal treatment plants are well designed to remove the risk of pathogenic microorganisms in water, facilities aren't as well equipped, or required, to filter out trace pharmaceuticals. The research project is especially timely after a recent investigation by the Associated Press revealed that a vast array of pharmaceuticals have been detected in minute levels in the drinking water supplies of 24 major metropolitan areas. Even in small amounts, the chemical cocktail has raised concern over what might happen to humans from prolonged consumption.

After a five-month investigation, the Associated Press reports that a variety of drugs -- from Ibuprofen and antibiotics to prescription drugs and hormones -- end up in drinking-water supplies after getting flushed down toilets and washed down sink drains. An estimated 90 percent of pharmaceuticals in the environment come from consumers, AP reports.

Reckhow's research on pharmaceuticals in the drinking water has recently been covered on Channels 3 and 40 in Springfield, WFCR Radio in Amherst, Channel 6 in Providence, the Hampshire Gazette, the Lowell Sun, the Worcester Telegram & Gazette, and the Associated Press.

While he can't disclose testing locations for the AWWARF study, Reckhow confirmed that several are in Eastern Massachusetts. Ed Coletta, a DEP spokesman, did say the state agency will partner with national water-quality analysts, the U.S. Geological Survey, and the Lowell Wastewater Treatment Plant to test raw water from the Merrimack River starting in May.

The tiny amounts of pharmaceuticals present in drinking water, measured in parts per billion, doesn't seem to imply any kind of public-health threat at the moment, according to Dr. Reckhow.
On February 28th 2008, the Civil Engineering Department hosted more than 35 companies in its semi-annual Civil Engineering Career Fair. Students from all years braved the blustery winds to speak with recruiters, many of whom were UMass alumni.

One alum, now employed by Camp Dresser & McKee, writes "The Civil Engineering Career Fair at UMass Amherst is the reason why I am now currently employed. Here I am, almost three years later and happier than I ever thought I would be with my career. Just attending the career fair opens so many doors of opportunity."

Career fairs are a great way to find information about potential employers, practice good communication skills, and make connections. The next Civil Fair will be held next fall, so watch for event updates! For questions previous career fairs, please contact Jodi Ozdarski @ ozdarski@ecs.umass.edu

Notes from an Alumni

Returning to UMass...
Judd Galloway, UMass ’03, ’05

In February, I had the distinct pleasure of returning to UMass to recruit entry level structural engineers for KPFF Consulting Engineers. It was great to be back on campus; it's not so long ago that I was a structural engineering graduate student. I received my BS and MS in 2003 and 2005 respectively. However, I did forget how shockingly cold it is back East in the winter (I'm in LA now, sandy beaches and warm sunny days).

I was pleased to see that the campus, college, and department are doing well. There are quite a few new buildings on campus and the structures lab was full of students. I was very impressed with the graduating engineers that stopped by to talk about career opportunities with me. Most students were well spoken and seemed genuinely excited about structural engineering.

Rather than go on about how much fun I had returning to UMass, I thought that I should include some information regarding what interviewers at career fairs are looking for. Researching the companies that you are interested in ahead of time and asking questions about specific projects leaves a great impression. Graduate level courses on an undergraduate resume look great. Lastly, appearance, grades, and attitude matter; take a little time to iron a shirt to present yourself professionally.
I remember (not too long ago) being a nervous student at career fairs, wondering if I was ready to practice engineering. I even asked one interviewer if he had felt ready when he finished his degree. His answer reassured me and calmed my nerves a little. He didn’t feel ready either and he thought that most people don’t, but if you studied hard in school the education that you receive at UMass will be a good foundation to build on. So if you are nervously approaching a prospective employer at a career fair, just remember they are people too and can probably relate to your experiences.

It was great to be back at UMass, to see former professors, meet students, and visit with my former classmates. I hope to see you all again in the fall. GOOD LUCK UMASS CONCRETE CANOE!!

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**Locate and Name This Bridge!**

This bridge is 352 meters long and is comprised of over 2200 metric tons of structural steel. It is the region’s longest cable-stayed bridge, and is “widely regarded as one of the most impressive feats of Civil Engineering” in the area. It also has a number of innovative features, such as wind shielding and unpainted enclosed steelwork.

Email your answer to nofio@ecs.umass.edu by April 17, 2008 for a chance to win a University of Massachusetts travel mug. January’s bridge was the Forth Bridge, located in across the Firth River in Scotland. Congratulations to January’s winner, Sam Gregorio!