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## CEE Online Graduate Programs: Cutting-Edge Curriculum for Professionals Worldwide

Online learning is an accelerating trend in Higher Education, and UW Civil & Environmental Engineering is leading the way. Three unique CEE master's degree programs are now offered online for professionals in Construction Engineering, Sustainable Transportation, and Supply Chain Transportation and Logistics.

These innovative online programs are designed to fit the busy schedules of working professionals. Online interaction through live video and audio, discussion boards and email connect faculty and students working on projects all over the world modeling today's real-world work environments. The interdisciplinary expertise of faculty and connections with leading companies and agencies foster a rich interactive online learning experience and cutting-edge curriculum.

The **Master of Science in Civil Engineering: Construction Engineering (MSCE)** online program offers engineers targeted coursework to deal with changes in the heavy construction industry. Developed by

an interdisciplinary team from Construction Management and CEE, it is one of the few graduate programs in the country with this specialized focus and became the first fully online master's program at the University of Washington in 2002.

With a unique focus on the heavy construction industry, the curriculum includes studies in marine construction, cost estimating and analysis, utility construction, construction law, pavement construction, environmental regulations, and topical engineering courses.

Construction Engineering students learn how to deal with changes in the field, such as the need to replace aging infrastructures, advances in technology and materials, environmental and energy concerns, legal issues and new management practices. According to Program Director Joe Mahoney, a multifaceted approach is "key to providing construction companies the engineering and management knowledge critical to lead ongoing major infrastructure projects."

*Continues on page 9.*

## Dan Evans Honored with Diamond Award



Dan Evans

Dan Evans is being recognized for his many achievements with the 2014 College of Engineering Diamond Award for Distinguished Service. The awards ceremony will take place Thursday, June 5 at the University of Washington in Seattle.

Washington State Governor, U.S. Senator, University President – these are just a few titles Evans (BSCE '48, MSCE '49) has held during his more than sixty years of service to his community. Serving an unprecedented three consecutive terms as governor, he advocated tirelessly for higher education and environmental policy. Evans is a veteran of the U.S. Navy, former president of The Evergreen State College and U.S. senator. The citizens of Washington State have benefited from the thread of service

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## Message from the Chair

Greg Miller

One of the themes we have been pursuing over the last couple of years has been to increase the Department's alumni, professional, and community engagement. The most visible manifestation of this has been a series of events held over the past year giving people the opportunity to come to campus and other venues to connect with students, faculty, and each other. A partial list of these events includes:

- National Steel Bridge Competition Alumni Brunch (Spring 2013)
- UW Husky Football "Tailgate" in More Hall (October 2013)
- Career Fair/Company Reception (January 2014, held annually)
- '70s decade reunion held in More Hall (March 2014)
- Public Service Alumni Happy Hour (March 2014)
- 50-year graduation ceremony (Class of 1963 last June, Class of 1964 this coming June)
- 60-year class lunch (Class of 1953)

Please keep an eye out for opportunities to participate in these kinds of events, and if you have ideas of things you'd like to help make happen, please let us know. As I have mentioned before, we are working to build better partnerships, and this is, of course, a two-way street. Even if you don't typically attend, think about giving one of these events a try — they are pretty fun.

As you will discover in this newsletter, we had a banner year hiring faculty. Six new people joined us in CEE. Although this is an uncommonly high number for a single year, it is consistent with the fact that we are in a time of ongoing retirements, and that we continue to pursue growth to meet student demand. Several of these faculty hires involve joint appointments with other units (e.g.,

Continues on page 5.

## New Faculty Have Arrived!



Jessica Kaminsky

Jessica Kaminsky, assistant professor in transportation engineering, studies the social sustainability of civil infrastructure with an emphasis on developing communities and infrastructure change worldwide. She is currently researching methods to measure the relationships between culture and global sanitation infrastructure coverage. Another ongoing project investigates construction safety on participatory job sites where users donate labor in order to bring basic infrastructure

to their communities.

Kaminski holds a PhD in civil engineering from the University of Colorado, Boulder and a BS in civil engineering from Rice University. Prior to entering academia, she spent 6 years working around the globe with one of the world's largest civil engineering firms, CH2M HILL.



Faisal Hossain

Faisal Hossain, associate professor in hydrology and hydrodynamics, received his PhD from The University of Connecticut; an MS and BS from The National University of Singapore and Indian Institute of Technology, Varanasi, respectively. He comes to CEE from Tennessee Technological University where he has been associate professor in Civil Engineering for the past nine years. His research comprises hydrologic remote sensing, human modification

of extreme hydro-climatology, sustainable water resources engineering, transboundary water resources management and engineering education.

Hossain has received numerous awards including the NASA New Investigator Award (2008) and, most recently, the U.S. Fulbright Faculty Award (2012-2013). He has published over 100 peer-reviewed journal articles, edited two book volumes and contributed eight book chapters. His group's research on human modification of extreme events by artificial reservoirs has been featured by public media such as the BBC, *National Geographic*, *New Scientist*, *Newsweek* and German Public Radio. Hossain's capacity building initiative promoting satellite remote sensing has resulted in an independently owned satellite flood forecasting system for the government of Bangladesh.

*New Faculty biographies continue on page 4.*



## Remembering Professor Colin Brown



*Professor Colin Brown*

It is with great sadness that we report the passing of Professor Emeritus Colin Brown, who died on November 13, 2013. He was a teacher who cared deeply about others, and a life-long learner. Brown always enjoyed a lively discussion, not just for arguments' sake, but to make sure that the facts aligned and logic hung together.

Colin Brown was born and raised in England. At the end of World War II, after a brief and unenthusiastic spell in the British army, he returned to

London to earn a Bachelor's degree from King's College, where he studied engineering, theology and philosophy; a combination that seemed to him unremarkable. Brown married in 1954, and he and his wife Irene moved to British Columbia where he designed and built bridges in remote locations for the provincial government.

A chance encounter in Victoria B.C., and the Russian Sputnik launch influenced Brown to pursue his PhD at the University of Minnesota. He received a doctorate in Aeronautical Engineering under Larry Goodman and accepted an academic position in Berkeley, where his daughters were born. Brown was caught up in the technical and social revolutions of the early '60s. During this time he met Ian Munro, on leave from Imperial College, who remained a close intellectual ally until Munro's untimely death. The pair stumbled into a lecture by Lofteh Zadeh on fuzzy sets and both recognized how this logic might address uncertainties in engineering systems in a new way that they found sorely lacking in the analyses of the time.

A stint at Columbia furthered Brown's interests in mechanics, with Raymond D. Mindlin, and safety, with Alfred M. Freudenthal. Leaving Columbia, he succumbed to temptation in the form of Jim Evans' invitation to move to Seattle. Brown served for 25 years on the faculty in Civil Engineering; as a faculty member, Department Chair and Chair of the Faculty Senate at the University of

Washington. During professional leave spent at Imperial College in London and in Christchurch, New Zealand, he pursued an ongoing fascination with systems engineering and uncertainty alongside Ian Munro and newfound colleagues Paul Jowitt, David Blockley and David Elms. After retiring in 1994, Brown and his wife settled in Corvallis, Oregon.

Brown's work has been published in journals of mechanical engineering, geotechnical engineering, systems and astronomical mechanics. During the past year (2013) he was in discussion with a professor in Colombia regarding the absence of early stone bridges in South America. He also co-wrote an article about online learning with a colleague in the U.S.

He read everything, forgot nothing and had a habit of having just read the definitive work on a subject on which you thought (incorrectly) that you were an expert.

His intellectual interests were dizzyingly broad. Brown affected everyone he met, actively maintaining countless friendships throughout life. Friends say that he read everything, forgot nothing and had a habit of having just read the definitive work on a subject on which you thought (incorrectly) that you were an expert. His style was sometimes contradictory, mostly understated and often humorous. While he agreed that 'brevity is the soul of wit', Brown, nonetheless, seemed to prefer an indirect approach. He took pleasure in a paper that deduced the social arrangements in ancient Egypt solely from the change in slope in the Bent Pyramid. And, as his students soon learned, the casual remark "there is a book . . ." really meant, "Go and read it!"

Colin is survived by Irene, his wife of almost 60 years, his two daughters, and his grandchildren. All those who had the pleasure of knowing him, admiring him or calling him their mentor will feel the force of Colin Brown's personality for many years to come. ■



## UW Engineers Without Borders in Guatemala

In early January, three UW students, Darcy Akers and Lisa Dunham (CEE) and Chris Westgard (Public Affairs) along with their mentor Steve Reiber (HDR) traveled to La Vega, Guatemala on an assessment trip for the UW chapter of Engineers Without Borders. Victor Mora, an Electrical Engineering student at University of Galileo, joined the group in Guatemala and became the team's facilitator and translator. The students assessed the feasibility of two proposed projects to be undertaken working with community members. The first is construction of a community center that would house a market, social and cultural events, and sports tournaments, and also serve

as a children's play area during the rainy season. The second is an improvement of the road between La Vega and the nearest town, Sibinal. EWB has been at work in La Vega for over a year now and earlier helped the community co-op solve problems with their fish hatchery. A team led by Hannah Snow (CEE) and Charlie Waters (Fisheries) implemented changes to the hatchery last September that increased the yearly production rate from 2,000 to 25,000 hatchlings. "We look forward to continued cooperation on projects that apply classroom learning to real projects and enhance the quality of life in La Vega," says Dunham. ■



Lisa Dunham (BSCE '12, MS CEE) and Darcy Akers (Junior CEE) meet some La Vega children.



On the road to La Vega with Chris Westgard (MA Public Affairs), Victor Mora, Steve Reiber (PhD, HDR Engineering) and Lisa Dunham (BSCE '12, MS CEE).



Sunrise hike—Victor Mora, Lisa Dunham (BSCE '12, MS CEE), Chris Westgard (MA Public Affairs), Darcy Akers (Junior CEE) and Gustavo from La Vega standing before the tallest mountain in Guatemala, Volcano Tajumulco.



Hard at work, Darcy Akers (Junior CEE) measures the distance to the culvert beside the road.

## New Faculty *(continued from page 2)*



Amy Kim

Amy Kim joined the department as an assistant professor this winter after completing her PhD program in Civil Engineering from Texas A&M University. Prior to pursuing her doctorate degree, she worked as both an engineer and architect in Chicago.

Kim's research focuses on quantifying energy efficiency projects and integrated project delivery methods. Current research on energy

efficiency projects involves comparing the measured facility improvement energy savings to the predicted value as quantified by a calibrated building energy simulation model. In addition, post-occupancy measurements of indoor environmental qualities such as thermal comfort and lighting level are being compiled. Kim has leveraged previous research effectively delivering transportation infrastructure projects to apply to vertical construction. For example, she is conducting state of the practice into using public private partnership (PPP), an alternative form of project delivery frequently used for highway projects for social infrastructure (i.e., courthouse, institutional, public education facilities). ■



## Dan Evans (continued from page 1)

that runs through his varied career.

Before entering politics, Evans was a successful structural engineer with the City of Seattle, Associated General Contractors, and in private practice. Elected as governor in 1965, His innovative approach to policy, a reflection of Evans' engineering background, secured his reputation as a popular and effective leader. He founded the first state-level Department of Ecology and Washington's community college system. In 1983, Evans became a U.S. senator.

In addition to serving on numerous nonprofit and corporate boards, Evans has always championed the University of Washington where he served two terms on the Board of Regents. He also served on the UW Foundation Board, chaired the Husky Stadium Renovation Committee, and taught courses at his namesake college, the Evans School. Evans was advisor to the Creating Futures campaign, served on the College of Engineering's Campaign Executive Committee and is a recipient of the UW Alumnus Summa Laude Dignatus Award. In 2012, He and his wife Nancy were honored with the UW Gates Volunteer Service Award. Numerous other awards include the E. Donall Thomas Medal of Achievement from the Fred Hutchinson Cancer Research Center and the Legacy Award from the Rainier Institute.

More information of the award and its recipients is available at: [enr.washington.edu/alumcomm/diamond/index.html](http://enr.washington.edu/alumcomm/diamond/index.html). ■

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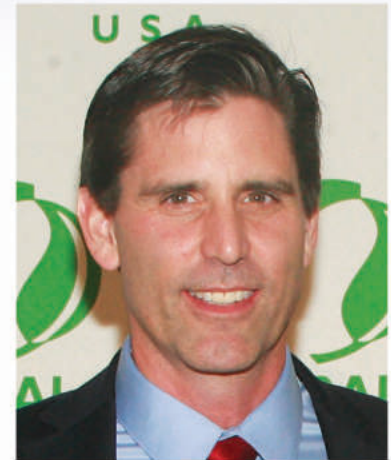
## Message from the Chair (continued from page 2)

the School of Environmental and Forest Sciences in the College of the Environment, and Interdisciplinary Arts and Sciences at UW Tacoma) and are related to a broader campus-wide hiring initiative in the area of freshwater systems. Such joint hires are increasingly common, providing formal mechanisms for interdisciplinary activity, while also allowing units to share resources efficiently. We certainly did not have the full resources to hire six new 100% CEE faculty but are quite happy to have all these new people as part of our teaching and research team.

Speaking of resources, there was a recent article in *The Seattle Times* highlighting the record \$336M in donations the UW received last year. When I compare that huge number to the relatively small amount that I contribute to CEE on an annual basis, it's natural to wonder if a smaller donation actually matters. You might also ask whether the UW even needs additional private support given the size of its existing endowment, its current relatively high tuition, and its reduced but still present state support. I plan to provide some perspective on the role giving and endowment revenues play in CEE's operations in an upcoming newsletter (spoiler alert: virtually all of it supports students and student activities.) For now, let me just say that seeing what I have seen over the past several years as chair, I've actually increased my annual giving. Whatever the opposite of cynicism is in this regard, that's what I've experienced as I've learned the details of how the department really works.

As a final note, I wanted to add a short personal remark concerning the passing of Professor Emeritus Colin Brown this past November (see article on page 3). I had the privilege of having Colin both as an instructor while I was an undergraduate here, and as a colleague when I returned to join the faculty. He was influential to me in both these roles, as I know he was to many others. In fact, it was primarily because he called me into his office one day to tell me I should think about graduate school that I ended up doing what I did. Colin was refreshingly unconventional, always a great source of knowledge and ideas, and a delightful person to have had as part of the UW CEE community. ■

## Mark Jacobson To Deliver 2014 Evans Lecture



Dr. Mark Jacobson

Dr. Mark Jacobson will speak at the Daniel L. and Irma Evans Lecture on Thursday, May 15 at 4:30 pm (location to be announced). A professor in Civil Engineering at Stanford, Dr. Jacobson is recognized as a preeminent expert in renewable energy. He has appeared on *The David Letterman Show* and *TED Talks*. His talk, "Roadmaps for Transitioning Washington State and All Other 49 U.S. States to Wind, Water, and Solar Power for All Purposes" details the development of technical and economic plans to convert our nation's energy infrastructure. Jacobson's research seeks to better understand severe atmospheric problems, such as air pollution and global warming, and to analyze and develop large-scale clean renewable energy solutions. The CEE community is encouraged to attend this free lecture and the following reception. For additional details regarding the Evans Lecture, please visit [ce.washington.edu/news/lecture](http://ce.washington.edu/news/lecture). ■



## Keeping Our Waters Clean:

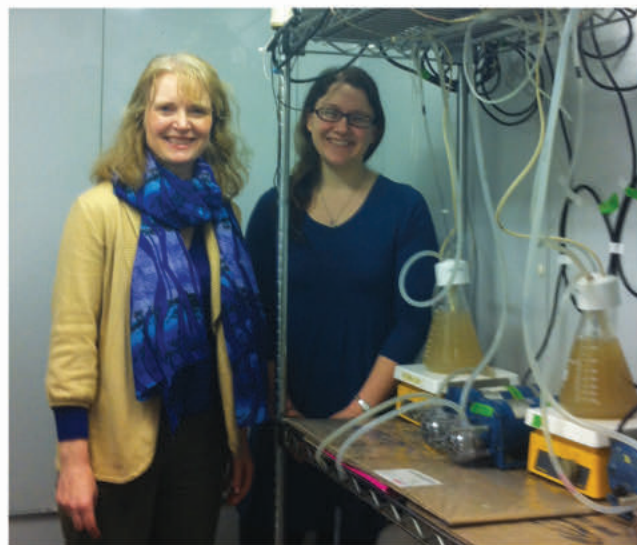
## Improving Wastewater Treatment to Remove Emerging Contaminants

### THE STUDY

Chemicals from household products have been detected in the environment for over 20 years. These contaminants include chemicals from fragrances, cosmetics, cleaners, and medications that are released in small amounts into household wastewater.

These contaminants may have negative effects on plants and animals in surface waters even at extremely low concentrations. One group of chemicals, the endocrine disrupting compounds, have been shown to affect fish fertility and life cycle at concentrations as low as 1 nanogram per liter (0.0000001 ppm). Traditional wastewater treatment removes some of these but even minute quantities are significant. Adding to the problem, these chemicals are continuously released into the environment resulting in long-term, pervasive exposure.

While the consequences for humans and fish are largely unknown, CEE professor Heidi Gough is looking for solutions to improve removal of these contaminants during wastewater treatment. The research goal is to develop bioaugmentation technologies that can be used to improve treatment in wastewater treatment plants with poor removal. The work has resulted in isolated cultures of bacteria capable of degrading triclosan (antimicrobial), bisphenol A (plasticizer), ibuprofen (anti-inflammatory drug), 17 $\beta$ -estradiol (natural hormone), and gemfibrozil (cholesterol lowering drug). Some of these contaminants are suspected to adversely affect aquatic life, for others the effects are not yet known. "Many of these chemicals are very important to society; they include people's



L-R: Professor Heidi Gough and PhD candidate Nicolette Zhou.

medications and disinfectants used in surgical wards. We shouldn't wait for environmental impact studies to be completed before developing the framework for an engineered solution," Gough says, "if we've come this far with a bacteria degrading one chemical, we will have a model that applies to many contaminants."

PhD candidate Nicolette Zhou points out that because biological transformation has already reduced contaminant concentrations in wastewater treatment, bacteria suitable for bioaugmentation should be present in wastewater treatment plants. To be amenable to engineering their increased concentrations, the bacteria must (1) remove the contaminant to extremely low concentrations, (2) grow in common growth media while maintaining the ability to degrade the contaminant, which will not be present in the bioaugmentation reactor, (3) degrade the contaminant even when higher concentrations of other energy sources are present since wastewater is very nutrient rich, and

*Continues on back cover.*



One group of chemicals... have been shown to affect fish fertility and life cycle at concentrations as low as 1 nanogram per liter (0.0000001 ppm)



## Awards & Accolades 2013–2014

### Faculty Honors

#### Jessica Lundquist Presented With AGU Editor's Award

Dr. Jessica Lundquist, associate professor in hydrology and hydrodynamics, was presented with the American Geophysical Union (AGU) Editor's Award, Journal of Hydrometeorology. She was recognized for her outstanding work and contributions to the atmospheric sciences. Lundquist provided timely and detailed reviews of a challenging series of Comments and Replies.



Charles Roeder

#### Charles Roeder Honored With AISC 2014 Educator's Lifetime Achievement Award

Professor Charles Roeder has been granted the American Institute of Steel Construction (AISC) 2014 Educator's Lifetime Achievement Award. The award honors individuals who have contributed to the success of AISC and the structural steel industry. It gives special recognition to those whose outstanding service over a sustained period of years has been invaluable to AISC and the structural steel academic community.

#### Dorothy Reed Receives 2014 Academic Engineer of the Year Award

Professor Dorothy Reed received the Puget Sound Engineering Council's 2014 Academic Engineer of the Year award. Award criteria include significant advancement of the state of the engineering art, active participation in interposing new technologies in society, and active participation in improving the level and scope of engineering education. Professor Reed was cited for significantly advancing the state of engineering through her research and teaching at the University of Washington.

#### Dennis Lettenmaier Presents 2013 Langbein Lecture

Professor Dennis Lettenmaier was selected to present the AGU 2013 Walter B. Langbein Lecture. The lectureship is awarded for lifetime contributions to the basic science of hydrology and/or unselfish service promoting cooperation in hydrologic research. Additional considerations may be the candidate's renown as a lecturer and/or as an educator.

### Student Honors



Brian Henn

#### Brian Henn Receives Rod Sakrisson Memorial Fellowship Award

Brian Henn, doctoral student in Civil and Environmental Engineering, received this year's Rod Sakrisson Memorial Fellowship Award from the Washington section of the American Water Resources Association (WA-AWRA) for his dissertation titled, "Development of Statistical Tools for Estimating Air Temperature, Precipitation and Snowpack in

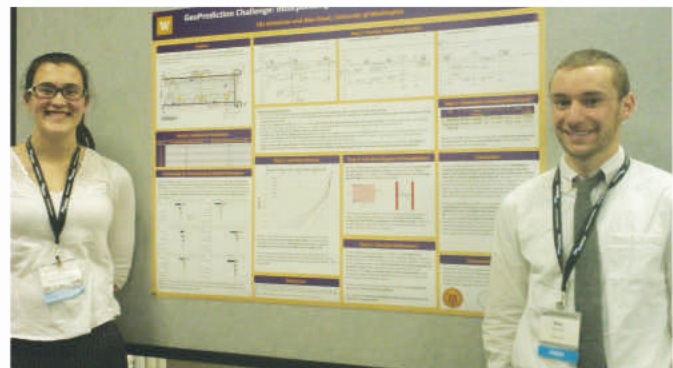
Mountain Watersheds." A panel of five WA-AWRA section members evaluated submissions determining the relevance of projects to current water resources research needs, projects' interdisciplinary nature, and the applicants' ability to communicate. More information regarding Brian's research can be found online at <http://students.washington.edu/bhenn/>.

#### Kathryn DeBenedetto and Alyssa Yap to Serve on COE Student Advisory Council

CEE majors Kathryn DeBenedetto and Alyssa Yap have been selected to serve on the inaugural College of Engineering Student Advisory Council. The Council, which includes undergraduate and graduate students, meets monthly with the College of Engineering Dean or Associate Dean and provides a student perspective on planning and budgeting matters for the College of Engineering.

#### CEE Students in GeoPredictions Competition

CEE majors alex grant and Lily Grimshaw participated in the GeoChallenge GeoPredictions competition at the ASCE Geo-Congress held in Atlanta, Georgia on February 23-26. This year's competition required students to predict the settlement on the site of a high school. Grant and Grimshaw placed in the top ten in the nation with their predictions and were invited to Geo-Congress to present their findings.



Lily Grimshaw and alex grant.

#### Nicolette Zhou Given Student Travel Grant to Present Her Work

Nicolette Zhou (CEE PhD student, advised by Dr. Heidi Gough) has received a Student Travel Grant Award to present her work at the 2014 American Society of Microbiology (ASM) General Meeting. This highly competitive grant is awarded based on the quality of research presented in the student's conference abstract and on a letter of recommendation from the student's adviser.

#### PhD Transitions from Student to Faculty

We are proud to announce the following CEE PhD graduate student faculty hires:

- Anna Birely (PhD '12), Assistant Professor, Texas A&M
- Patricia Clayton (PhD '13), Assistant Professor, University of Texas, Austin
- David Lattanzi (PhD '13), Assistant Professor, George Mason University
- Kelly Pitera (PhD '12), Associate Professor, Norwegian University of Science and Technology, Trondheim ■



## The Greenroads® Story



### What is Greenroads?

The Greenroads® Rating System promotes sustainable roadway and transportation infrastructure through standards and recognition. Research on the idea began at the University of Washington in 2007 with industry, local and DOT support. In 2010 the independent nonprofit Greenroads Foundation was established to run the first ever sustainability rating and certification process for roads.

The Greenroads Rating System is now the gold standard for roadway rating systems, and has formed the basis of a number of similar systems in the U.S. and around the world. Using a third-party certification process similar to LEED®, points are awarded for sustainable practices in both new and reconstructed road projects with a focus on design and construction. Greenroads asks road projects to go beyond the regulatory minimum and provides recognition, in the form of certification, to those projects that do. Certification is awarded at four different levels: bronze, silver, gold, and evergreen. The idea is to provide incentive for doing better, credibility through independent third-party review, and recognition of successful projects.

Projects are evaluated in many areas including environment, water, access, equity, construction activities, materials and resources, and pavement technology. Credits can be earned for many different things including storm water quality, recycled materials, scenic views, cultural outreach, multimodal access, and community-inclusive design. It is becoming clear that a road built to Greenroads standards costs less (both initial and long term),

SE Pioneer Way Reconstruction

City of Oak Harbor, WA



Greenroads Silver Certified project in Oak Harbor, WA. Photo courtesy of Greenroads™ Foundation.

reduces environmental impact, increases livability and drives market innovation.

At the moment, 51 projects are registered worldwide in the U.S., Canada and South Africa—that's over 70 actual roadways and billions in construction value. "When you look at the construction price tag for all of the projects registered, it totals over \$5.5 billion," says CEE professor Steve Muench. In the U.S., 10 certified projects have been completed in Washington, California, Texas and Colorado.

### Who is involved?

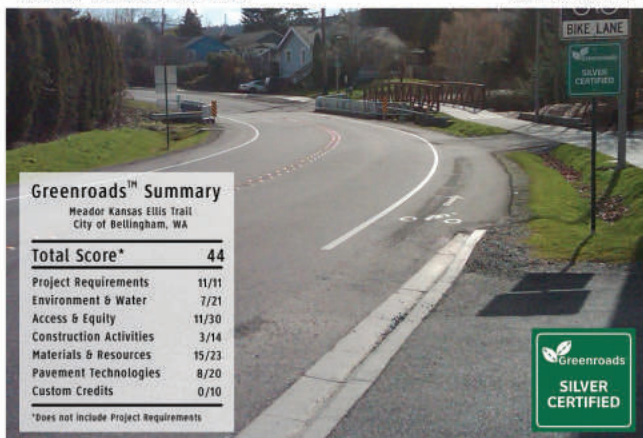
Many may recognize Greenroads Executive Director and CEE alum Jeralee Anderson (MSCE, PhD). Anderson and Greenroads were honored as a 2013 White House Champion of Change for Transportation Technology – the only nonprofit of the 12 awarded. The research and development that put Greenroads on the map comprises work by 33 UW graduates, students and professors including current UW junior Darcy Akers and PhD students Manisa Veeravignom and Julian Yamaura.

Outside of the UW, the unsung heroes of sustainable roads are the designers, contractors, materials suppliers, and project owners that create outstanding projects that achieve Greenroads certification and help move the industry towards sustainability. As Muench says, "We have found that most people actually want roads like this, and that we actually have the ability to make them today. We just need the will to do it on a consistent basis."

To learn more about the Greenroads Foundation and Greenroads projects, or to get involved, see [greenroads.org](http://greenroads.org) or contact Associate Professor Steve Muench ([stmuench@uw.edu](mailto:stmuench@uw.edu)). ■

Meador Kansas Ellis Trail

City of Bellingham, WA



Greenroads Silver Certified project in Bellingham, WA. Photo courtesy of Greenroads™ Foundation.



## CEE Grad Programs Online (continued from page 1)

Graduating its first class of 14 students this spring, the online **Master of Sustainable Transportation (MST)** provides the comprehensive knowledge engineers and planners need to lead with sustainable transportation strategies and practices. The MST curriculum examines the growing concern for transportation's environmental, social, energy and economic impact on our society.

Communications and policy analysis are hallmarks of the MST program. CEE professor and program director G. Scott Rutherford, cites his personal experience with transportation planning projects throughout the country. "Project stakeholders often don't communicate well with each other," Rutherford explains. "The problems aren't the substantial engineering factors involved in designing complex transportation projects, but rather the environmental, social and economic impacts and extensive political issues involved." The MST Program aims to prepare professionals to meet these challenges.

According to instructor Alon Bassok, "This is a unique program, the only one in the country where you get to think all transportation, all the time—it's not an engineering program, or a planning program, or a public affairs program. The MST program includes these fields and directly focuses on transportation." The MST curriculum is divided into three areas of concentration: Planning and Livable Communities; Environmental Issues and Impacts; Policy Development, Health and Economics. Course topics include land use planning, climate change and energy, alternative transportation, and systems analysis and resiliency.

"My favorite part of the online program is interacting with professionals in the field who aren't just in one location," Bassok says. "What works in Seattle isn't necessarily applicable in New Mexico, North Carolina, or Iraq. Students with various backgrounds really add to the dynamics of the class."

MST students participate in individual and group projects that focus on real-world issues and applications in sustainable transportation. The program culminates with individual capstone projects where students have the opportunity to work with a company or agency on a current industry problem.

Launched in Fall 2013, the **Master of Supply Chain Transportation and Logistics (SCTL)** online program goes beyond transportation systems to examine how these systems function in the larger context of a complex global supply chain ecosystem, providing the strategic knowledge to manage supply chain tradeoffs. The program has several key design elements that ensure an effective educational environment for students, including a residential week at the UW, weekly interactive sessions online, and all students taking the same sequence of courses with the same schedule.

The program's interdisciplinary curriculum emphasizes quantitative and technical principles, incorporating both engineering and business courses, and focuses on using data to inform decision making. In the second year of the program, students apply what they have learned to a specific supply chain problem based on their interests and experience.

According to associate professor and academic director Anne Goodchild, flexibility is key to embracing students from very different backgrounds. Some have more extensive professional training; others may have an undergraduate degree in industrial engineering or business, but all have expertise and knowledge that they bring to the classroom environment. "Our students learn from each other, as well as from the instructor." Many business schools have programs in Supply Chain Management, but don't offer the interdisciplinary approach and concentration on transportation and logistics that the SCTL program does.

The advisory board of the SCTL program brings a collective wealth of experience in the field and includes representatives from some of the largest, most innovative and most influential organizations in the business world. Board members help review content, guide course design and provide updates to ensure the program remains current as the field evolves. They focus on what they see as most important for professionals in the field: IT systems and their integration into the supply chain, and managing risk to build resilient operations.

To learn more about these self-sustaining CEE online master's programs, please visit [www.ce.washington.edu](http://www.ce.washington.edu). ■



## Steve and Sylvia Burges Continue to Impact CEE

Many of you fondly remember Professor Steve Burges's challenging and unique lessons on water resources and hydrology. Steve and his wife Sylvia continue to be an active presence in the department through generous endowments, some of which have remained anonymous for years.

Many may not realize the couple made possible CEE's Endowed Visiting Professorship established in 2004 (renamed the Burges Endowed Visiting Professorship in CEE) and the Endowed Presidential Fellowship (renamed the Burges Endowed Presidential Fellowship in CEE). Steve and Sylvia preferred to remain anonymous while Steve was an active member of the faculty and during ongoing professional partnerships with his graduate student.

In late 2013, they established the Burges Endowed Lectureship creating an annual lecture that will feature distinguished practitioners in the field of Civil and Environmental Engineering. The lectureship provides a platform for speakers, including current faculty, to share their research. Along with the Wenk and Evans Lectures, the Burges Lectureship will round out the

department's suite of endowed lectureships. In addition, endowment distributions may be used to repeat the lecture at satellite locations to reach a broader audience.

Since the couple's arrival at the UW in 1970, they have contributed their time, talent and thoughtfulness. CEE is grateful, not only for their exceptional generosity, but for their consummate advocacy of the work being done by our faculty and students. We thank Steve and Sylvia for investing in UW CEE and look forward to watching together as our program is made stronger through these funds.

For more information about establishing an endowment at the UW, please contact Megan Ingram at [mkingram@uw.edu](mailto:mkingram@uw.edu) or (206) 685-1378. ■



*Steve and Sylvia Burge*

## UPDATE: CEE Strategic Support Challenge

**Less than \$15,000 in matching funds remain**

We are in the final stretch of our matching gift challenge and only \$15,000 remains to be claimed. If you have been considering making a first-time gift or increasing your annual contribution to the CEE Strategic Support Fund, now is the time. The match goes away after June 30, 2014.

Gifts to the CEE Strategic Support Fund help the department meet the growing demand for qualified engineers by increasing access to CEE degrees. Gifts to this fund provide supplemental scholarship and fellowship resources, enhance and expand classroom and lab space, and support recruitment of the best faculty to serve a growing, top-notch student body.

CEE Strategic Support Challenge

### Challenge Details

Matching funds are available for any first-time gift or three-year pledged gift of \$500 or more.

Gift Type	Your Gift	Match Provides
New gift of \$500+	\$1	\$1
Three-year pledge of \$500/yr+*	\$1	\$2

\*Match made only in year one of pledge.

If you would like to participate in the challenge or have questions, contact Katie Bunten, Assistant Director of Advancement, at (206) 616-8310 or [frisb@uw.edu](mailto:frisb@uw.edu).

For more details and to make a gift online visit <http://www.ce.washington.edu/alumni/challenge.html>. ■



## 1953 Reunion

The Class of 1953 returned to campus in January to commemorate 60 years since their graduation. Following lunch, the group toured More Hall and made a stop at the structures lab.



L-R: Bill Conner, Clarence Hruska, Ken Castile, Peter White, Prof. Greg Miller, Drew Miller (Greg's dad).

**REMINDER: Class of 1964 50th Reunion is Sunday, June 15!** Contact Katie Bunten with questions or to RSVP: [frisb@uw.edu](mailto:frisb@uw.edu), (206) 616-8310. ■

## '70s Alumni Together Again at More Hall

Alumni from the decade of the 1970s were invited to join us for a reunion in More Hall on March 13. An enthusiastic crowd gathered to celebrate with a nostalgic slideshow, 70s hits (think "Crocodile Rock"), visits with faculty, and a chance to meet and mingle with current students. A special thanks goes out to everyone who sent in images for the slideshow and shared memories of their time at CEE. ■



Amy Haugerud (BSCE '77), and Noel Miller, wait for the opening remarks from Jon Magnusson (BSCE '75), at the 1970s Decade Reunion. Alumni took tours of More Hall, met current students and caught up with friends and faculty.

## ALUMNI FEATURE: Eset Alemu, MSCE '08



Eset Alemu was recently named one of the American Society of Civil Engineers (ASCE) 2014 New Faces of Civil Engineering. The ASCE recognizes engineers under the age of 30 for their impact on the profession and in society. Alemu was one of ten honorees submitted by ASCE to be considered for DiscoverE Foundation's overall 2014 New Faces of Engineering which recognizes young engineers across disciplines.

Alemu is a hydraulic engineer with WEST Consultants in Bellevue and an active member of the Seattle/Puget Sound Chapters of ASCE and Engineers Without Borders. She is currently the Project Manager for an EWB project in Nicaragua that aims to construct a coffee processing plant and an associated wastewater treatment facility to mitigate the environmental impact of coffee processing on water resources.

### Q: Why did you choose to come to the UW?

A: I moved to the US to pursue my graduate education as a civil engineer. I had family in Seattle, so I decided to look at schools in the Pacific Northwest. I looked at graduate schools around the region and found UW offers the best graduate program for water resources engineering. After talking with professors in CEE, I knew it was a good fit for my aspirations.

### Q: What is most rewarding about volunteering with EWB?

I get to practice basic engineering that impacts people's daily lives and livelihoods. I get to wear different hats as a civil and environmental engineer to formulate designs that account for environmental impact, treatment efficiency, ease of operation, and constructability. I love working with a team of dedicated volunteers at EWB to actualize the community's goal of achieving greater economic value for their coffee harvest.

### Q: What is your fondest memory of your time in More Hall?

A: During my time in graduate school, I worked as a research assistant for Dr. Richard Palmer. Several RAs and I worked in an office unofficially called the "Pink Room" located at the south end of More Hall on the second floor. Even though I spent more time in that lab than anywhere else, I enjoyed being there because of the people. It was a dynamic and fun group of graduate students that made for interesting discussions, stories and lessons around the espresso machine.

### Q: What would you most like to accomplish in your engineering career?

A: I am currently building simulation models for water resources systems and infrastructure. I also develop planning and management tools to evaluate the hydrology and hydraulics of watersheds and rivers. In the next phase of my career, I would love to work on developing engineering solutions for providing access to water supply; appropriate technologies for water treatment, energy generation and irrigation; and formulating programs for empowering developing communities through water, health and sanitation infrastructure. ■



## The Bridge

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# The Bridge

## Improving Wastewater Treatment *(continued from page 4)*

(4) degrade the PPCPs with high degradation rates so the reaction time and bacterial dose is reasonable.

### PROGRESS

Eleven (11) bacteria were isolated from wastewater-activated sludge, and seven (7) met all criteria for bioaugmentation. The isolated bacteria were diverse, representing four phyla including Proteobacteria, Firmicutes, Bacteroidetes and Actinobacteria. The seven (7) cultures that degraded added contaminants to less than 10 ng/L (criteria 1) were all able to be grown using inexpensive, readily available carbon sources with substrates high in proteins being most universally effective. They also were capable of degrading even after being grown in the absence of the contaminants (criteria 2). Most importantly, the bacteria degraded the contaminants to low ng/L concentrations in the presence of high concentrations of other nutrient sources before growing on the other carbon sources (criteria 3) and were able to rapidly degrade the contaminants when added to activated sludge. Particularly promising, mathematical modeling suggested that very low additions of the bacteria would substantially improve contaminant removal during wastewater treatment. Work is now ongoing to test this model in continu-

ously operated laboratory reactors that are designed to mimic the conditions found in full-scale wastewater treatment plants where sorption, competition, and predation can affect performance.

### ADDITIONAL INFORMATION

This work began as a collaboration between Heidi Gough and Professor John Ferguson (1941-2013). In addition to the contributions of Nicolette Zhou (MS '12, current PhD student), many UW alumni have contributed to the success of this project including April Tenney (MS '11), Greta Andakar (MS '10), Kathryn DeBenedetto (BS '14), Wayne McNeal (BS '10), Sarah Koser (BS '09), Tate Pak Nixon (BS '07), and Nate Cross (BS '05).

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Early results have been published as: Zhou, N.A., A.C. Lutovsky, G.L. Andaker, H.L. Gough, and J.F. Ferguson, *Cultivation and characterization of bacterial isolates capable of degrading pharmaceutical and personal care products for improved removal in activated sludge wastewater treatment*. Biodegradation, 2013. 24(6): p. 813-827. ■