Greetings from the University of Florida!

It is my honor and pleasure to introduce you to our new school, the Engineering School for Sustainable Infrastructure and Environment (ESSIE) which formally began on July 1, 2011. ESSIE is the nexus where civil, environmental, and coastal and oceanographic faculty will come together to solve unique problems of sustainability. ESSIE houses the Department of Civil and Coastal Engineering and the Department of Environment Engineering Sciences. The School also encompasses seven research centers and institutes: the Center for Environmental Policy, Center for Multimodal Solutions for Congestion Mitigation, the Howard T. Odum Center for Wetlands, Center for Infrastructure Protection and Physical Security, Transportation Research Center, Water Resources Research Center, and the Bridge Software Institute. As the first Director, I am excited about this undertaking as we move into this new direction at UF.

Within the next two years, the current faculty and I will be looking for 7-9 top-notch researchers to fill faculty positions. Positions that are currently being advertised are in the areas of: Air Resources; Aquatics, Wetlands and Systems Ecology; Coastal Engineering and Physical Oceanography; Geotechnical Engineering; and Infrastructure, Materials and Pavements. These new hires will join our dynamic, cross-disciplinary group of researchers and will have ample opportunities for collaborations, both within their research field and with interdisciplinary teams within our state-of-the-art laboratory and facilities for teaching and research. We are proud of these facilities, some of which have been featured in the national media as you will read about in this newsletter. They include 89,000 square feet of existing laboratory space, $4M of new laboratories under construction, 3-D X-ray Tomographic Unit, Category 5 Hurricane Wind Simulator, Signal Control Lab, Vehicle Based Traffic Data Acquisition System, Full-scale Geo-engineering Soil Test Box, TARP Certified Stormwater Unit Operations and Process (UOP) Testing Facility, UF Atmospheric Photochemical Outdoor Reactor, and access to a Scanning Environmental Electron Microscope through the Major Analytical Instrumentation Center. For those of you who are out there and are ready to make a move to sunny Florida, I want to encourage you to watch for our advertisements of these positions in the upcoming months.

As for our students, we are encouraging them to embrace this new concept as well. There is a growing number of our undergraduate and graduate students who are participating in College-wide initiatives to foster entrepreneurship, innovation, and leadership skills in engineering. Once the School’s initial design is set, the students are being encouraged to incorporate these new skills and think beyond the traditional lines of thinking in the areas housed within the school and to develop new directions for the fields in reference to research undertakings. I am convinced that our students, some of which have received national recognition and who are highlighted in the pages to come, will be acknowledged not only by their peers at UF, but across the nation for their innovative and insightful ways to resolve current national issues and pursue issues in critical areas not yet being explored.

As for our degree programs, we will continue to offer ABET-accredited bachelor’s degrees in both civil engineering and environmental engineering, Master’s and doctoral degrees in Coastal and Oceanographic Engineering, Civil Engineering and Environmental Engineering Sciences. At the graduate level, our students have fifteen specialization areas within the school’s programs to choose from with the possibility of additional interdisciplinary degrees and international collaborations. I am fortunate to work with 43 outstanding faculty who support the educational and research needs of 753 undergraduate, 337 masters and 161 doctoral students. Due to the diligence of the faculty, we have approximately $34.7 million in research funding. An interesting item to note is that our total annual expenditures exceed $27.3 million which I have found places us at the same level or more often higher in annual expenditures among our peer institutions.

Along with the new hire initiative, some of my additional initiatives for the school are to see the completion of the $2M expansion of our Powel Laboratory and the $800k renovation of the building housing the Center for Infrastructure Protection and Physical Security; to review academic and research programs within ESSIE; to establish a new website and newsletter; and to complete a strategic planning exercise with the current faculty that will define research and academic goals, objectives and tasks for the next three years. These could be seen as fairly lofty goals, but with the collaboration, assistance and support of our faculty, students, industrial and government sponsors and the rest of the School staff and administration, I believe we will reach these goals with great ease.

I am honored to have been selected as the first Director of this new School and even knowing the immensity of the tasks at hand, there is no doubt in my mind that this new venture will be a successful one. As part of the Gator Nation, we have a highly dedicated faculty and staff, driven students and an administration that supports the mission and vision of the Engineering School of Sustainable Infrastructure and Environment. I encourage you to visit our website at www.essie.edu and join our alumni group by joining our facebook or Linkedin initiatives. To join our facebook group, please friend Nancy Glanville @ Nancy UFgrad-Coordinator. I am striving to have every ESSIE engineer (including those who graduated before the development of the School) say “My name is_________________ and I am an alum of the number one (Civil, Coastal or Environmental) engineering program in the country!”

Dr. Kirk Hatfield
Director
The Engineering School for Sustainable Infrastructure and Environment (ESSIE)
Dr. Treavor Boyer has received a prestigious National Science Foundation (NSF) Career Award for his proposal, "CAREER: Sustainable Urine Processes through Integration of Education and Research (SUPER)." Dr. Boyer’s vision is to develop robust engineering approaches for the treatment of water at various stages in its ‘lifecycle’ so as to maximize water conservation, recover valuable materials, sequester harmful contaminants, minimize the production of waste byproducts, and advance the water-energy nexus. His project will focus on one aspect of the water lifecycle - urine source separation and treatment. This topic was chosen for its intrinsic importance for wastewater management, and because it encapsulates the key technical issues for a number of different water recycling strategies. The insights developed from the proposed work will lead to exciting new ideas for treatment and beneficial uses of water. It is anticipated the results will catalyze new research directions of significant interest to EPA in the context of innovative drinking water treatment technologies, DoD in sustainable wastewater treatment processes for forward operating bases and DOE in a fundamental understanding of subsurface biogeochemical processes.

Dr. David Prevatt, an Assistant Professor in the Department of Civil and Coastal Engineering, received an NSF Faculty Early Career Development award title “Career: Tornado-Resilient Structural Retrofits for Sustainable Housing Communities”. The objectives of his research are to characterize tornadic wind loads on residential buildings and compare the resultant structural response of traditional construction versus a structurally enhanced one. Study variables include both tornado parameters (vortex size, forward speed, pressure profile and swirl ratio), and building parameters (location relative to the tornado core, structural connections, and the main wind resisting system). A 3-D Finite Element Analysis model of a light-framed residential structural system will be used as the prototype to establish its structural response. A database-assisted design (DAD) methodology will be used to analyze tornadic wind load time-histories from a model building and determine critical design loads and reactions for the structural system. Full-scale tests will be conducted to validate the numerical model and also to evaluate the structural and economic benefits of enhanced structural systems in houses. The effort will provide the basis for a tornado-resilient design methodology for residential structures.

Congratulations to Dr. Boyer and Dr. Prevatt for a well-deserved recognition in their pursuit of excellence in their respective fields!
Florida’s hurricane lessons could save homes, lives in tornado-prone areas

Filed under Engineering, Research on Thursday, May 12, 2011.

GAINESVILLE, Fla. — Scientists combing through the destruction left behind by the massive twister that swept through Tuscaloosa, Ala., last month say beefing up building codes and retrofitting existing homes with building techniques honed in hurricane-battered Florida could save property and lives in tornado-prone areas throughout the country.

“Since Hurricane Andrew struck Florida back in 1992, Florida’s building construction professionals and building officials have continually improved their structural load paths, which means that connections between the roof and wall framing and between wall to foundations have been strengthened,” said David O. Prevatt, an assistant professor of civil and coastal engineering at the University of Florida and principal investigator of the project. “In contrast, older homes in Tuscaloosa had mainly toe-nailed rafter connections, and almost none had adequate foundation anchors.”

The project is being funded by a National Science Foundation RAPID Response Grant for Exploratory Research to investigate and gather data about wind damage to, and performance of, wood-frame structures in the affected areas. Prevatt acknowledged that there is no defense against the most devastating tornado winds, which can top 200 mph, but he said he believes improvements in home construction can make houses and apartment buildings safer in less severe tornado conditions.

“There is no magic bullet here. An EF4 or EF5 level wind will still level even the best-constructed homes in its path,” Prevatt said. “The challenge facing us is to somehow improve performance of our existing homes so that more of them can survive the less intense EF0 to EF2 tornado and by so doing better protect its occupants.”

The NSF recognized the urgency with the grant request because this type of data on structural failures is perishable; once debris removal begins, there is no way to analyze the performance of the wood structures, said John W. van de Lindt, a professor of civil, construction and environmental engineering at the University of Alabama. The grant is being provided to UF to work in close collaboration with UA and other researchers.

The research team inspected the 5.9-mile affected tornado path in Tuscaloosa on May 2–5 to analyze wood-frame structures that were not damaged by trees. The team received clearance from FEMA’s Engineering Division and inspected 150 structures, including single-family homes (one- and two-story) and apartment complexes. Collecting more than 3,000 photos, the team determined the EF-Scale rating in relation to damage for each of the 150 structures, with values ranging from EF0 to EF5, depending on the location within Tuscaloosa. Based on that data, Prevatt said, states that experience frequent tornado activity would be well-advised to beef up their building codes to more closely resemble those in the Sunshine State.

However, he said, even more lives and property could be saved by encouraging homeowners to retrofit their houses to be more wind-resistant.

“Retrofitting is a costly business but the opportunities might exist immediately after a disaster to build back something that will perform better than what was lost. This requires effort to go above and beyond the minimum current requirements of the building code,” Prevatt said. “But realistically what price are you willing to pay for your family’s safety?”

Other team members include:

• Andrew Graettinger, associate professor of structural engineering and materials, and David Grau, assistant professor of construction engineering and management, both at The University of Alabama
• William L. Colbourne, director of wind and flood hazard mitigation, Applied Technology Council
• Rakesh Gupta, professor of wood science and engineering, Oregon State University
• Shiling Pei, assistant professor of civil and environmental engineering, South Dakota State University
• Samuel Hensen, branch engineering and technical manager, Simpson Strong-Tie Co.

The team will continue working with the National Science Foundation grant and the International Residential Code to begin the process of making changes to ensure load paths are enhanced to better protect the life safety of the occupants. The research team also will be available for the city of Tuscaloosa and surrounding areas as the rebuilding process begins.
Development of a novel technology for protecting welders from toxic welding fumes

Exposure to toxic metals released from welding operation such as hexavalent chromium, nickel and manganese causes various adverse health effects including lung cancer. The Aerosol and Particulate Research Laboratory (APRL) under the leadership of Dr. Chang-Yu Wu has developed a novel Amorphous Silica Encapsulation (ASE) technology that can drastically reduce the toxicity of the welding fume. The magic lies in the modification of the shielding gas to allow in-situ encapsulation of the metal fumes by a thin layer of amorphous silica at the welding zone. The technology allows a welder to operate as if he/she is using a regular shielding gas. The research team just successfully carried out a field demonstration at Tooele Army Depot. Hexavalent chromium concentration is reduced to below the new OSHA standard and actually below instrument detection limit. The bioavailability of all three toxic metals is also confirmed to be greatly minimized. Recognizing the technology’s contribution to protecting the health and safety of Naval welders, the Society of Naval Architects and Marine Engineers will award the research team the 2011 Elmer L. Hann Award in November 2011.

For any questions regarding the ASE technology or the related research, contact Dr. Wu at cywu@ufl.edu or 352-392-0845.

EES students complete “Capstone course” requirement in Guatemala

This fall, a team of ten undergraduate environment engineering students traveled to Guatemala as part of their capstone design course. In their final year of study, all EES undergraduate students complete a capstone engineering experience that builds on their education from previous classes and integrates elements of engineering, economics, communication, and sustainability. The capstone team, directed by Professor Timothy Townsend, worked in coordination with government officials, municipal leaders, and the local communities to provide engineering expertise that will result in a safer and more sustainable system to manage the region’s solid waste.

At the beginning of August, several project team members traveled to Guatemala and met with officials from el Ministerio de Abiente y Recursos Naturales (MARN, or Guatemala’s Ministry for the Environment and Natural Resources), local citizens, and municipal leaders. Two project locations were identified. The entire capstone team returned to Guatemala to collect necessary site data for their final designs. The team raising funds for the visit and developing conceptual engineering plans to present to the officials and community. The students look forward to delivering a solid waste management plan that will have a real, measurable impact on the environmental health of the two communities in Guatemala.
Design of Groundwater-Level Monitoring Network

Dr. Louis Motz has been awarded a project by the South Florida Water Management District (District) to design a groundwater-level monitoring network for the Upper Floridan Aquifer in the south Florida area covered by the District. This project, which is part of the District’s 10-year plan to optimize monitoring networks across the District, will help reduce uncertainties in the District’s numerical groundwater flow models by optimizing the District’s groundwater monitoring network for the Upper Floridan Aquifer. Dr. Motz, along with Dr. Shirish Bhat, will design a network that recommends the number and locations of groundwater monitoring wells and frequency of data sampling that will provide equivalent or better quality data with the same number of wells or fewer wells, compared to the existing groundwater monitoring network.

A technical approach has been developed to optimize the District’s Upper Floridan Aquifer groundwater-level monitoring network. Time series analyses will be performed to determine the temporal variability of the sample data. Sampling frequency will be recommended based on the ability to detect short-term and seasonal groundwater-level fluctuations and to discriminate between the effects of short-term and long-term hydrologic stresses. An ArcGIS-based geostatistical analysis will be performed to characterize the spatial variability in the groundwater level data.

Groundwater levels will be estimated at locations in the study area where data do not exist. A potentiometric map (showing the elevations to which water rises in wells) of groundwater levels in the Upper Floridan Aquifer in the study area will be constructed, and an uncertainty map will be constructed to indicate errors associated with the potentiometric map and to illustrate the areas where additional monitoring wells are needed.

The existing groundwater-level monitoring network within the District will be evaluated by comparing it to the optimal network that is recommended for implementation. Areas within the existing network with both excess and insufficient coverage will be identified. Recommendations will be made to implement the optimized groundwater-level monitoring network based on minimizing the number of monitoring wells subject to constraints established for allowable errors of estimate for groundwater levels in the District.

Cohesive Soil and Rock Investigation

Professors David Bloomquist and D. Max Sheppard, along with Postdoctoral Researcher Raf Crowley have been working with the Florida Department of Transportation to predict bridge scour depth for rock and cohesive soil. Bloomquist, Sheppard, and Crowley have developed two unique instruments, the Sediment Erosion Rate Flume (SERF) and the Rotating Erosion Testing Apparatus (RETA) to study this problem.

With the new instruments, engineers can take in-situ rock core or Shelby tube samples and directly measure erosion rate. Testing with the instruments is fully automated through a series of computer-controlled feedback loops (with a LabView interface). Engineers can set the instruments to “test” and erosion can be measured over the course of a few days with minimal monitoring. The SERF uses an advanced laser-ultrasonic system combined with a high-precision stepper motor to advance samples during erosion tests. The RETA utilizes feedback control between a torque cell/clutch and a variable-speed rotating motor. Crowley, Bloomquist, and Sheppard hope to use results from their research to develop a better method for predicting local scour depths in the vicinity of a bridge pier.
Kevin O’Connor, host of the PBS series “This Old House,” and his crew are taping at the University of Florida hurricane research lab on Wednesday using the portable UF hurricane simulator at the UF eastside campus in Gainesville.

By Nate Crabbe  
Staff writer for Gainesville Sun

A television crew visited Gainesville on Wednesday to make sure “This Old House” doesn’t blow down.

The crew of the PBS home improvement series filmed at the University of Florida’s structures and materials research laboratory on its Eastside campus. A hurricane simulator used to test building materials was turned on “This Old House” host Kevin O’Connor, subjecting him to winds up to 120 mph and driving rain.

“The purpose of this story is to come and see where the science is developed, to learn what it means when 120-mile-an-hour winds sweep up your roof,” O’Connor said.

The segment is expected to air during a series of shows starting in January. The shows are focusing on the renovation of a house in a high-wind zone on the Rhode Island coast.

The show allows UF to showcase research into making storm-resistant building materials, said Forrest Masters, an assistant professor of civil and coastal engineering.

“It’s a great means to educate the public about hurricane hazards,” he said.

The hurricane simulator is nicknamed the Medusa, after features that look like a giant metal version of the snakes on the mythic creature’s head. O’Connor strapped himself to a wood frame as Masters directed his crew of students to slowly turn up the wind speed, leaving O’Connor soaked and clutching on ropes and the wood to stay upright.

“The force on you is incredible,” O’Connor said as the crew filmed his reaction to the experience. “I can only imagine what it’s like up against the buildings.”

The show next moved to a crane-like device that pulls on a roof to demonstrate the pressure caused by high winds. David O. Prevatt, an assistant professor in the department of civil and coastal engineering, showed how metal connectors and straps help prevent a roof from separating during a storm.

The machines are designed to produce the type of conditions seen during a hurricane. UF researchers deploy weather towers in an actual hurricane to get the measurements for the work.

“As we like to say, we’re taking the lab to the hurricane and we’re taking the hurricane to the lab,” Prevatt said.

O’Connor said he had been in storms of maybe 40 mph, but the hurricane simulator was unlike anything he had experienced. The heavy winds made it difficult to breathe, he said.

“It hurts. It really hurts,” he said.

O’Connor has been the host of “This Old House” since 2003. The show was originally hosted by UF alumnus Bob Vila. The UF hurricane simulator is a popular stop for television programs. The Discovery Channel’s “Mythbusters” filmed there for a 2009 show on whether it is better to have windows open rather than closed during a hurricane.

“We busted the myth,” Masters said.

Contact Nathan Crabbe at 338-3176 or nathan.crabbe@gvillesun.com. For more stories on the University of Florida, visit www.thecampussun.com.
Center for Infrastructure Protection and Physical Security (CIPPS)

Now Offering a Critical Infrastructure Protection Certificate (CIPC)

The Civil and Coastal Engineering (CCE) Department has established a Critical Infrastructure Protection Certificate (CIPC) program for students interested in furthering their knowledge in the area of protecting the Nation's critical infrastructure systems against blast, shock, and impact incidents. The CIPC program is a 9-credit program, that is compatible with the decision by the College of Engineering to select the area of security and critical infrastructure protection as one of its focus areas.

The Center for Infrastructure Protection and Physical Security (CIPPS), established by the CCE Department in 2006, provides a solid foundation for both the proposed focus area in the College of Engineering and the CIPC program. This program could be expanded in the future to several tracks, one in each of the COE engineering departments.

The proposed Critical Infrastructure Protection Certificate was formulated to meet the education needs of a diverse group of potential students, while working within the current CCE curriculum to optimize the delivery of education and faculty resources. The Critical Infrastructure Protection Certificate program will be administered through the CCE Department. It is further anticipated that offering this Certificate will strengthen relationships between the COE and government and industry sectors, which are expected to increased enrollment in both the MS and PhD programs, following completion of the Certificate. Further, it is envisioned that this new program will create new R&D funding opportunities, and enhanced job placement for COE graduate and undergraduate students.

Participants in the Critical Infrastructure Protection Certificate program can select three courses from the list shown below.

- Introduction to Protective Structures (required of all participants)
- Advanced Protective Structures
- Retrofit Methods for Protective Structures
- Applied Protective Technology
- Impact Engineering

Typically, graduate students involved with the R&D activities at CIPPS take all five courses. Participants will be awarded the Certificate upon their completion of all graduate degree requirements.

Florida T2 Center Activities include FHWA Summits and Showcases

FHWA Every Day Counts Summits

Last fall, the Florida T2 Center successfully organized and hosted 10 regional Every Day Counts (EDC) Summits for invited guests representing state departments of transportation, FHWA, key leaders for local agency professional organizations and industry in ten different states for the Federal Highway Administration (FHWA). The purpose of the EDC Summits was to launch the FHWA Administrator’s (Victor Mendez) initiative designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of our roadways, and protect the environment. FHWA Deputy Administrator, Greg Nadeau, conducted opening comments and lead the closing round table discussions at each of the ten Summits.

Highways for LIFE Demonstration Showcases

In addition, the Florida T2 Center continues to organize and host a series of demonstration showcases on behalf of FHWA's Highways for LIFE (HfL) program that focuses on advancing Longer--lasting highway infrastructure using Innovations to accomplish the Fast construction of Efficient and safe highways and bridges. The three goals of HfL are to:

- Improve safety during and after construction
- Reduce congestion caused by construction
- Improve the quality of the highway infrastructure

Showcases include a technical session and a site visit, some of which occur during the middle of the night to observe actual construction. Recent showcases:

- Rapid Removal and Replacement of U.S. 15/29 Bridge Over Broad Run near Gainesville, VA
- Accelerated Bridge Construction (ABC) in Washington, DC, Montpelier, VT and Sullivan’s Island, SC
- Precast Concrete Pavement Systems in Ontario, CA and Fairfax, VA
- Performance Contracting for Construction (PCfC) in Clare, MI
- Prefabricated Bridge Elements in Frederick, MD and LaGrange, GA
- Prefabricated Concrete Pavement Systems (PCPS) in Newark, DE and Mt. Arlington, NJ
One of the most prestigious graduate fellowships available is the Graduate Fellowship from the National Science Foundation. This past year five environmental engineering graduates were awarded this fellowship: Jen Apell, Amy Borello, Stephanie Ishii, Gwen Ryskamp (not pictured), and Christine Valcarce. Amy and Christine will continue their doctoral studies at UF in EES under the guidance of Dr. David Mazyck, while Stephanie will continue her doctoral studies at under the guidance of Dr. Trevor Boyer. Jen will pursue her doctorate at Massachusetts Institute of Technology and Gwen will do so at either Nebraska or Michigan State. These awards bring great honor to the recipients, to EES and to the new Engineering School of Sustainable Infrastructure and Environment.

The Jerry Shea Leadership Award

Another student from The Department of Civil & Coastal Engineering was recognized for his outstanding leadership skills and the ability to work seamlessly in a team environment. Johnny Chan (pictured above on left) was selected by IRF and presented with the Jerry Shea Leadership Award. The award is named for Gerald (Jerry) P. Shea, a renowned engineer who exemplified quality leadership and who devoted much of his time to the IRF Fellowship Program.

The Department of Civil & Coastal Engineering applauds the efforts of these students and are proud of their accomplishments. Way to go Gator Engineers!
UF American Concrete Institute Pervious Concrete Competition

On October 16, 2011 the student chapter of the American Concrete Institute competed in the National ACI Pervious Concrete Competition, which also marked their first participation in an ACI Competition since the inception of their chapter this fall semester. The competition was held as part of the National Convention in Cincinnati, Ohio. The goal of the completion was to design a concrete mix that was both pervious and a high tensile strength. The students assisted in designing pervious mixes and testing cylinders. Eight concrete mix designs were proved the two designs with the most favorable characteristics selected for each of the two teams.

Three students from the chapter traveled to Cincinnati where 33 teams submitted cylinders for the competition. The competition commenced on Sunday morning beginning with flowrate tests. After being evaluated for flowability, the cylinders were subjected to splitting tensile test to see how well the concrete would withstand real world loads. Scoring was based on the results of these tests, theoretical costs of the mix designs, and their submitted written report.

A luncheon was held the following day to announce the winners. Kenneth C. Hover, a professor in the Civil and Environmental Engineering Department at Cornell University, was the speaker. Following his presentation was the announcement of the schools that placed in the strength to cost ratio and overall performance categories. One of the teams from UF placed first in the overall performance category, the second team from UF places 13th overall.

Overall the trip was successful. Despite the fact that this was the first ACI competition UF has competed in they were able to not only place but win first in overall performance. All this could not have been done without the dedicated members of the chapter, faculty advisor Dr. Christopher Ferraro and help from the FDOT State Materials Office.

ASCE continuing the tradition of excellence

Over sixty members of the University of Florida student chapter of ASCE represented the university in the 2011 ASCE Southeast Student Conference this past spring. Following months of preparation and two days of hard-fought civil engineering competition, UF emerged in 4th place overall.

Memorable moments included the UF Eckhoff Steel Bridge Team placing 1st after an utterly dominating build time of 6.61 minutes and an extraordinary economy of $1.35M. Equally impressive, the UF Concrete Canoe team powered to a 2nd place title after posting consistently high scores and achieving first place in the Women’s Sprint and Coed races. Rounding out the events, UF got the judges’ attention to achieve 3rd place in the Professional Paper Presentation.

One of the more curious events was the Balsa Bridge competition. UF submitted the second smallest bridge that supported a weight of almost 300 lbs. to the surprise of everyone, including the UF Balsa Bridge Team. After bonuses and efficiency were calculated, UF placed 1st. Other successful ventures included the Transportation, Concrete Cubes, and T-Shirt Design Competitions.

While the team finished strong, preparing for the 2012 competition has already begun. With the continued support of the faculty and sponsors such as Suwannee American Cement and Kimley-Horn, the unrivaled determination of the University of Florida students will rise to meet the challenge of the forthcoming competition head-on.

Annual Student Conference

Each year in March, the The Center for Multimodal Solutions for Congestion Mitigation showcases the latest in transportation-related research conducted by graduate students at the University of Florida. Students from the departments of civil engineering, industrial and systems engineering, urban and regional planning, occupational therapy, environmental engineering and other related discipline areas attend and/or present papers and posters. The conference is free and open to transportation professionals in academia, and in the private and government sectors. Awards are given to students for outstanding presentations and posters. This year, students from the departments of epidemiology, civil and coastal engineering and urban and regional planning won awards for their presentations, and environmental engineering and civil and coastal engineering students won awards for posters. The judges presiding over the awards selection were members of the CMS’s External Advisory Board. The CMS Annual Student Conference is held in conjunction with the center’s External Advisory Board meeting.

Presentations

1st Place - Yanning Wang, Ph.D. Student, Epidemiology
2nd Place – Ruoniu (Vince) Wang, Ph.D. Student, Urban & Regional Planning
3rd Place - Dimitra Michalaka, Ph.D. Student, Civil & Coastal Engineering

Posters

1st place - Ori Baber, Ph.D. Student, Environmental Engineering
2nd Place – Brett Fuller, M.E. Student, Civil & Coastal Engineering
3rd Place - Kwangkyun Lim, Ph.D. student, Civil & Coastal Engineering
FEATUREd STUDEntS

Todd Davis, P.E. (Ph.D. candidate in structural engineering) is crossing time zones and cultures once again. Under the advisement of University of Florida’s Dr. Ronald A. Cook, P.E., Todd is researching the short-term and long-term performance of adhesive anchors in concrete, which has taken him to Germany to spend his summer in the Institut für Werkstoffe im Bauwesen (IWB) laboratory at the University of Stuttgart. He received a research grant from the German Academic Exchange Service (DAAD) to investigate the effect of early age concrete on the short-term bond strength of adhesive anchors, the goal of which is to determine when it is practical to install and load adhesive anchors following concrete casting. As the IWB laboratory is internationally recognized as a leader in research and testing in anchorage to concrete, this is a wonderful opportunity for Todd to work with and learn from his German colleagues.

This isn’t Todd’s first time in Germany, nor his first time overseas. As the son of an army officer, Todd spent a year in kindergarten and later his junior and senior years of high school (1988-1990) in Manheim, Germany. While in high school, Todd had the rare opportunity to travel to Berlin with his track team in the spring of 1989, six months prior to the fall of the Berlin Wall. His team visited Checkpoint Charlie and crossed over into the East German sector of Berlin. One of his souvenirs from that time in Germany is a piece of the Berlin wall.

Todd’s first experience living overseas as an adult began in 1999, when he and his wife, Shana (civil engineer) moved to Guatemala and opened a regional office for a non-profit engineering development organization. It was Todd’s desire to further equip himself as a structural engineer that brought him back to the U.S. and to Gainesville in 2007.

Having experienced the advantages of cultural immersion during his years in Guatemala, Todd chose to complete two semesters of German at UF prior to his arrival in Germany, even though all the IWB staff speak English.

This research opportunity for Todd was all made possible due to Dr. Cook’s twenty-year mutually beneficial relationship with research faculty from the University of Stuttgart. Those years of collaboration have included various research projects, journal papers, the development of US and International codes pertaining to anchorage to concrete, and the hosting of two research students from the University of Stuttgart at UF. Todd had the pleasant experience of collaborating with one of those students who spent eight months at UF in 2009.

Todd has been selecting coursework during his time at UF that would prepare and position himself to play an effective role in both private practice and academia, possibly in an international setting. His goal is to partner with international academicians and engineers in both the private and non-profit sector in order to advance the understanding of engineering theory, ethics, and design for future engineers; conduct research in international partnerships; facilitate code development; and also influence infrastructure decisions that will empower and improve the quality of life of historically underrepresented members of society.

While the cross-cultural experience and witnessing firsthand the change in Germany since reunification will be enjoyable and educational, Todd ultimately expects that his time of professional research training in Germany will better equip himself and strengthen his resolve for his future goals of international engineering research and practice in this increasingly multicultural, interconnected world.

Katie Indarawis

Happenstance. We can all share a story about these series of seemingly unlinked events and how they come together at the end of the day when the pieces just fit together. This is the story of one student’s journey toward her PhD...we would like to introduce Mrs. Katie Indarawis.

Katie graduated high school in 1997 ranking 14th out of her graduating class of about 432 students. She says she was probably the only AP kid in her classes that had all intentions of attending community college and never even applied to a university. She completed her Associate of Arts at Santa Fe Community College in Gainesville, FL in 1999. She transferred to UF where she double majored in mathematics and statistics, not engineering since she feared she would not pass thermodynamics. Upon graduation of those two bachelor degrees, she got married and decided she wanted to become a community college instructor. She took a year off to study for the GRE and worked as a nanny.

She was admitted into the UF College of Education to complete a one year master’s program in 2003. During her teaching internship at Gainesville High School she thoroughly enjoyed working with the high school students and was offered a full-time position at the school beginning the fall of 2004. Although she loved this job she saw that there were fundamental issues with the school system which she quickly found discouraging. After some reflection she turned her sights back to an engineering degree. With the assistance of a number of “fantastic advisors” in the civil engineering department, Katie was able to return to school at UF for a third undergraduate degree. She chose civil engineering because she didn’t think she could get through all of the chemistry in the environmental engineering curriculum. At some point she discovered that she enjoyed water treatment so she petitioned to take her senior design class through the environmental engineering department where she developed a mentor relationship with Dr. David Mazyck. Although pregnant with her first child during her last semester in the fall of 2007, Dr. Mazyck offered her a job at one of his off-campus labs. According to Katie, it was in those labs that she discovered that she thoroughly enjoyed doing research.

As she began getting deeper into her research she realized that something was missing – teaching. It was at this time that she decided that she wanted to teach at a university and needed a PhD. Fortunately, Dr. Mazyck was able to recommend her to Dr. Treavor Boyer, who is now her PhD advisor. Prior to beginning her PhD in the Fall of 2009, Katie became pregnant again but she was determined to start her PhD anyway and she made arrangements with Dr. Boyer to start working in the labs early that summer before the baby arrived.

Married now for nine years and two children later, Katie continues to work hard at completing a PhD in the environmental engineering sciences department under Dr. Boyer. Katie claims that every person’s journey is different. To her, it doesn’t matter how you reach your end goal, or how long it takes you, or how many times you feel like you are starting all over again, the important thing is that you keeping working hard toward your goals and never lose sight of what’s more important and to her it is her family. Katie plans to graduate with her PhD within the next two years. As you might surmise, she is an incredible woman and an inspiration to many of our students!
Dimitra Michalaka, a Ph.D. student in the Department of Civil and Coastal Engineering, received several awards in the last couple of months. First, she was selected as the recipient of the 2010-2011 Women’s Transportation Seminar (WTS) Central Florida Chapter Frankee Hellinger Graduate Scholarship. The scholarship is awarded annually to women pursuing graduate studies in transportation or a related field. A certificate along with the amount of $2,500 was given to her at the WTS Central Florida 14th Annual Scholarship and Awards Reception that took place on Monday, March 21, 2011 at the Dubsdread Golf Club in Orlando.

Dimitra also received the “2011 Gator of Engineering Attribute Graduate Student Award for Leadership” from the UF College of Engineering which is one of the Gator Engineer Student Recognition Awards. Five undergraduate students and five Ph.D. students were selected by Dean Abernathy and the UF College of Engineering Undergraduate Scholarships and Awards Committee for recognition for the following five attributes: creativity, leadership, integrity, professional excellence and service to the global community. The College announced and recognized the Gator award winners during the 2011 New Student Convocation on Friday, August 19. During the ceremony, Dimitra was a part of Dean Abernathy’s platform. Also, the College of Engineering will host a reception in honor of this year’s award recipients to be held on November 14, 2011 at the Sweetwater Branch Inn Bed and Breakfast in Gainesville.

And most recently Dimitra received one additional award. She received the “Future Industry Leader Spotlight Award” from the American Road & Transportation Builders Association (ARTBA). Of those who were considered for the award, only two female students were selected from across the US. The criteria for the award, set by ARBTA, states that the recipient must be enrolled in undergraduate or graduate studies at a U.S. college or university, have an outstanding academic record, and demonstrate extraordinary leadership skills within and outside the academic environment. ARTBA covered Dimitra’s expenses to attend the TransOvation Workshop and Exhibit that took place on September 6–9, 2011 at Lansdowne Resort & Conference Center in Leesburg, Virginia. A recognition plaque was given to Dimitra on September 7 during the TransOvation gala dinner.

Dimitra feels that all the awards she received are an important acknowledgement of all her efforts and a great incentive to continue working hard and getting involved with organizations that have as a goal to make a positive impact on our society. She also wanted to say that getting these awards were a result of being part of an outstanding research and teaching environment here at UF which significantly contributed to her professional and personal development. Finally, she would like to sincerely thank her advisor, Dr. Yafeng Yin, and Dr. Lily Elefteriadou and the other faculty for their continuous support.

Chapter Frankee Hellinger Graduate Scholarship. The scholarship is awarded annually to women pursuing graduate studies in transportation or a related field. A certificate along with the amount of $2,500 was given to her at the WTS Central Florida 14th Annual Scholarship and Awards Reception that took place on Monday, March 21, 2011 at the Dubsdread Golf Club in Orlando.

Dimitra Michalaka received the Future Industry Leader Spotlight Award at TransOvation conference in Virginia

Wastewater Design Capstone Class

For the 6th year in a row a team of engineering students from the Wastewater Design Capstone Class has won both the State of Florida and North American Environmental/Wastewater Student Design Competition. The team, Semper Aquam developed, presented and defended their design entitled “Stormwater Cycling Design Options in an Urban Industrial Watershed”, first at the Florida Water Resources Conference in April 2011 in competition against other Florida engineering schools in Orlando, and most recently on 16 October 2011 in Los Angeles at the Water Environment Federation Conference, one of the largest Water Environment conferences on earth (18,000 participants this year). The students and faculty member, Dr. John Sansalone, P.E. are in the Engineering School of Sustainable Infrastructure and Environment (ESSIE). Students of Semper Aquam and the students from the five previous winning design teams (2006-2011) who have taken the class are from Environmental, Civil and Chemical Engineering. Semper Aquam’s design focused on development, performance and economics of sustainable infrastructure for urban water treatment and reuse in semi-arid Southern California. Previous teams developed green infrastructure and water treatment designs for the University of Florida campus, for highway systems in South Louisiana, for wastewater treatment and reuse in Tallahassee and Greater Orlando, as well as for shipping ballast water treatment in Tampa.

Front row: Mallory Peterson, Emily Henderson, Jacqueline Martin, Back row: Dr. John Sansalone, Jacob Diamond, Yuan Gan, Robert Compton
In memorium...

It is with deep sadness that we have lost one of our own. PhD student, Michael David Ahrens lost his battle with cancer and passed away on April 27, 2011. Michael earned his masters degree from UF in 2005 and had recently returned to complete his PhD. Even with the debilitating issues of chemotherapy, Michael was able to work a full-time job and take nine credit hours of coursework this past year. Michael had a very positive outlook on life and he will remain an inspiration to us all. Michael is survived by his wife Kay (an employee of UF) and his two sons, Jonathan and David. He was employed as a manager for LOADTEST (Gainesville, FL), a deep foundation testing firm and subsidiary of Fugro (International). He was 45 years old.

In recognition of the second anniversary of the Haiti earthquake, we take time to once again remember one of our own. Brendan S. Beck, P.E. (BSCE ’98), lost his life on January 12, 2010 in the Haiti earthquake. The earthquake occurred shortly after Brendan arrived in Port au’ Prince and was trapped inside the Hotel Montana. He was in Haiti as a USAID consultant regarding sustainable infrastructure for eco-tourism to provide long-term benefit to the Haitian economy. Brendan had planned to return to the University of Florida to pursue an advanced engineering degree in Sustainable Infrastructure.

In loving memory of Brendan, the family created the “Brendan S. Beck P.E. Fund for Sustainable Infrastructure” through the Civil & Coastal Engineering (CCE) Department. The University of Florida chapter of Engineers Without Borders along with various charitable foundations and plans to use proceeds from Brendan’s Fund to build in Haiti.

You may go to the link below to support Brendan’s legacy and to honor a fallen member of the Civil Gator family: www.ufl.edu/Appeals/BrendanBeck

Hall Of Fame – Spangler Award

It is an honor and privilege to introduce our second and 2011 inductee into the Civil Gators Hall of Fame Mr. Lawrence L. Smith, P.E.. As with the inaugural inductee, he too is a Gator, as he obtained both a bachelor’s and master’s degree in Civil Engineering from the University of Florida. After graduation, he completed initial assignments in the private sector and military before beginning what would become a storied career in public service.

Throughout most of his career, he never was far from the University and the Civil Engineering Department. Consequently, he remained a supporter of the Department and a role model to many UF civil engineering students that went on to notable careers of their own. He oversaw many graduate students’ research projects, and working with UF professors, provided the funding and projects that resulted in many graduate degrees.

Larry’s commitment to the field of Civil Engineering did not stop with his exemplary career in public service and deep commitment to the UF Department of Civil and Coastal Engineering. He was involved in many professional and technical organizations, including local, state and national associations. These include: Transportation Research Board (TRB), American Association of State Highway and Transportation Officials (AASHTO), Strategic Highway Research Board (SHRP), American Society of Testing and Materials (ASTM), American Society of Civil Engineers (ASCE), where he served as President of the Florida Section.

The National Society of Professional Engineers (NSPE) Honors Awards Task Force has selected Mr. George R. Knecht as winner of the 2011 NSPE Distinguished Service Award. George was recognized nationally at the NSPE Annual Conference in Las Vegas, Nevada on July 15, 2011. Congratulations to this CCE Advisory Board member and Gator superstar!

Gator Alum and Current Civil PhD student are each recognized by Engineering News Record (ENR) Southeast

Loren Bobo, a Civil Engineering graduate, and Mr. Adnan Javed, a current Civil Engineering PhD candidate, have both been recognized by ENR Southeast as are part of ENR’s “Top 20 Under 40.”

Loren Bobo was recognized for her notable accomplishments as the Florida Department of Transportation’s District 5 Employee of the Year and received the National Edmund Friedman Young Engineer of the Year award.

Mr. Adnan Javed is the Sarasota County project manager and stormwater engineer. In his current position, he is responsible for the county’s Stormwater Infrastructure Repair and Replacement program aimed at improving the country’s approaches to stormwater rehabilitation projects. He is slated to receive his PhD from the Department of Civil and Coastal Engineering this spring semester.

Congratulations to these outstanding Gator Engineers!
Excitement was in the air on October 14, 2011, when the University of Florida Alumni Association hosted our prestigious 50th Year “GRAND GUARD” Reunion. During the weekend’s events, the Grand Guard Civil Engineering Class held a special reception for the 1961 graduates and a few of their distinguished professors: Dr. John Schmertmann and Dr. Don Sawyer (note: Dr. Paul Zia was unable to attend). Roger Seals (member, CE ’61) led the charge and rallied his fellow alums for an afternoon of memories, fellowship and fun! Between learning from Dr. Kirk Hatfield about the new Engineering School of Sustainable Infrastructure and Environment (ESSIE); sharing stories of touching memories; hearing about current research projects; lots of laughter and honoring their beloved professors, it was an event that will not soon be forgotten.

They met the current ASCE Student Chapter President, Miss Jillian Berrey, who shared the latest “happenings” on campus along with the 2010 and 1961 ASCE Annual Reports for comparison. Then, much to her surprise and delight, the Class of ’61 presented Jillian with an extremely generous $2500 donation for the Chapter! It was indeed a glorious afternoon and fun was had by all. This was the first of a new annual tradition for the College’s Department of Civil and Coastal Engineering. We are already looking forward to next year!
We are proud of our 2011 Gator Grads

CCE GRADUATES

PhD

Spring 2011
Acar Ozelim
Yu Chen
Parvesh Kumari
Xiaoyu Zhu
Summer 2011
Aditya Avithi
Jinsok Hong
Qiang Li
Eileen Rosa Pesantes
Tavares
Di Wu
Fall 2011
Andrew James Condon
Ashish Kulsrestha
Carlo R. Lopez
Cuie Lu
Tianying Niu
Young Jun Park
Eileen Rosa Pesantes
Tavares
Jason Thomas Smith
Ziqi Song
Xingsong Sun
Chloe Daisy Winant

Masters

Spring 2011
Benjamin Ashcraft
Adiksha Bekele
Michael Biffel
Stephen Bouwer
John Brown
Qian Cheng
William Cole
Krishnarao Dase
Sally Deschamps
Karen Deshon
Shusila Dhungana
Gary Drew
Christopher Egan
Robert Ferguson
Jacob Frye
Brett Fuller
Jessica Grant
Xue Gu
Simon Guevara
Ali Hanes
Su Hao
Roberto Herrera,
Nicholas Kandelidis
Priyank Kothari
Dan Li, Weijie Liu
Sebastian Lopez
Sahith Mallavarapu
Matthew Mc Caul
Russell McCloud
Mitsuhiro Nara Sawa
Robert Newsom
Kenneth Puskar
Anandan Patil
Alexander Poling
Balas Parushothaman
Keyang Ren
Peter Simms
Jarrod Stern
Yongqiang Tang
Jorge Uy
Taylor Vogt
Jordan Walker
Ze Wang
William Woodington
Yinpeng Xie
Xi Zheng
Summer 2011
Mohammed Hassain Al-Yami
Matthew Alan Antinelli
Beau Brooks
Tricia Ann Caldwell
Chi Ho Johnny Chan
Gary Scott Downing
Jonathan Richard Farley
Chelsea Lynn Gainer
Avshalom Ganz,
Liran Hadad
John Douglas Herrin
Rachel Lee Jackson
Judith Elizabeth Johnson
Matthew S. Jones
Clark Emery Letter
Jessica Lee Mackey
Marc Robert Mackey
Kenton Elliot McBride
Joshua Cory Miles
Sushmit Shreyans
Samarn Yarmohammadi
Nicholas Joel Zwemer
Fall 2011
Sung Jin Ahn
John William Stephen Allen
Bahar L. Armaghani
Nelson Javier Arnez
Stephen Matthew Belser
Matthew Michael Boyland
Carolyn Dowd Bonaventura
Thomas A. Brauer

EES GRADUATES

PhD

Spring 2011
Joshua A. Dickenson
Ruben Alexander Kertesz,
Yu Wang
Summer 2011
Alexander F. Gruss
Paul Anthony Indeglia
Chance Venable Lauderdale
Jianye Zhang
Fall 2011
Stuart Bryan Norton
Sejin Youn
Jianye Zhang
Masters

Spring 2011
Alia Shanna Ali
Taruja Uttamrao Borker
Pamela Sue Brown
Libby Chang
Sarah Esther Hisami
Comstock
Jeffrey T. Donelson
Timothy Scott English II
Keith Alan Jones
Esther Elizabeth Kaufman
Graham Paul Knopp
Justin Randolph Leech
Jeremy Christian Mc Bryan
Shahnab Mostary
James Pack
Sumnya Sankaran
Joseph Leroy Serr
Taccaaca Nkia Williams
Yongjia Yang
Summer 2011
Rachel Elizabeth Donahue
Christina Berth Herr
Wesley Allen Markham
Ryan Alexander Messer
Loren Taylor Moore
Patrick Ryan Stephen
O'Donnough
Gretchen Loumarie Suárez - Peña
Christine Odalys Valcarce
Maurice Burns Vaughan IV
Brandon Taylor Wood

Fall 2011
Ori Ryan Baber
Jean Shepard Brown
Ronald Jose Castillo Chaves
Jessica Christenson
Sara Lyn De Berry
Sylvia De Puy
David Gregory
Melissa Dawn Gunter
Christina C. Hoffman
Patrick Alexander Howard
Jonathan Robert Jasinski
Aimee Jordan
Wichanom Lertsakorn
Ronald Daren Payne
Abeda Abdul Raheem
Richard Mark Roberts
Sarah Noemi Rodriguez
Andrea C. Ruane
Rachel Kue Ruff
Sumnya Sankaran
Jaylin Iván Santos Rivera
Karl Matthew Selzter
Abinav Singhania
Horatio Carban
Marcel Cordes
Stephen Creighton
Michael Crompton
Fábio Freitas de Castro
Kevin Joseph Crump
Eduardo Dos Santos
Keith Alan Erdman
Marc Richard Erwin
Florian Alan Feibig
Sarah Ann Furtal
Yanning Han
Arban Gjoni Bajraktari
Peter Hankla
Andrew Hanna
John Haynie
Lee Hellstern
Corey Hill
John Hillman
Brandon Hinson
Eric Ho
Daniel Holden
Eric Hollouther
Hamza Hosein
Jack Hulsberg
Lynn Jia
John Jenkins
Ashish Kulshrestha
Asha Auliya
Robert Ferguson
Amitabh Garg
Addison Clark Duke
Adamo Bela Di Sisto
Mariana Diaz Torres
Wenshu Zhang

Kyle Elizabeth Taylor
Bachelors

Spring 2011
Abhinav Singhania
Karl Matthew Selzter
Alexander Crousal
Andrés Morales Wolff
Stephan Douglas Shortridge II
Natalie Gill York
Fall 2011
John Michael Agamin
Abraham Alendal
Gaudio Aicke Arfelli
Anthony D. Ayreo
Luke Aaron Berry
Brent Aaron Billington
Eric Robert Brough
Eliot Lee Brown
John Paul Buehrig
John F. Burbich III
Andrew John Byrd
Oscar F. Calle
Blaise Michael Carter
Ryan Anthony Catarelli
Nathan Allen Clemmons
Dennis Jay Coyle
Simon Ernesto Cuadra
Nikolai Dinesh Usha Hegde
Jun He
Lucas G. Firn
Maria Florina Glatzer
Lingmin Guan
Justin Oakes
Sandra Perez
Cameron Peritt
John Pole
Antonio Renda
Kawashima Ryo
John Robertson III
David Roseche
Priscilla Sale

Geyner Salgado
Sandro Sanchez Bernadola
Jennifer Seip
Cory Snyder
Steven Sonberg
James Stephen Johnson III
Tyler Steven Souris
Aaron Stolcar
Kiet Ta
Matthew Taylor
Victoria Tomiczek
Sarah Trang
Donald Watson Jr.
Peter Whitfield
Carey Wilkinson
Chase Wilkinson
Matthew Wilson
Richard Wilson
Williamorton II
Travis Young
Christa Zucarrino
Summer 2011
Anatolii B. Zucarrino
Andrés Morales Wolff
Stephan Douglas Shortridge II
Natalie Gill York
Fall 2011
John Michael Agamin
Abraham Alendal
Gaudio Aicke Arfelli
Anthony D. Ayreo
Luke Aaron Berry
Brent Aaron Billington
Eric Robert Brough
Eliot Lee Brown
John Paul Buehrig
John F. Burbich III
Andrew John Byrd
Oscar F. Calle
Blaise Michael Carter
Ryan Anthony Catarelli
Nathan Allen Clemmons
Dennis Jay Coyle
Simon Ernesto Cuadra
Nikolai Dinesh Usha Hegde
Jun He
Lucas G. Firn
Maria Florina Glatzer
Lingmin Guan
Justin Oakes
Sandra Perez
Cameron Peritt
John Pole
Antonio Renda
Kawashima Ryo
John Robertson III
David Roseche
Priscilla Sale

Travis James Freedman
Jonathan Joel Foster
Phillip Sergio Garcia,
David Alexander Gordon
Matthew Groetars
David Christopher McBride
Sasa Milivojevic
Jesse Vanham Mitchell
Aila Sayed Mourad
Moniaish Mashila
Christa Mena
Kayla Christine
Pemterner
Jenny Marcus Piccolo
Ashley E. Priester
William Don Piggio
Samantha Leigh Reilly
Jason Edward Ressler
Brian Matthew Rivers
Shane L. Robinson
Alejandro Saula
Ellen Amanda Saunders
Briston Ross Schroeder
John Leslie Schwartz III
Ross William Sheddin
Holly Ann Simon
Benjamin Clarke Smith
Ryan Jeffrey Stifflinger
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Tian Duc Vo
Christopher Kyle Watson
Brian John Temple
Kelsey Jennine Wood
Wenshu Zhang
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