

# SciTech News

THE COLLEGE OF SCIENCE AND TECHNOLOGY AT FAIRMONT STATE UNIVERSITY

[www.fairmontstate.edu/academics/CollegeofSciTech](http://www.fairmontstate.edu/academics/CollegeofSciTech)

## Safety Program Receives ABET Accreditation

The Occupational Safety Program has been successfully climbing the ladder of recognition. This success has been strongly supported by the hard work and dedication of the students as well as the Occupational Safety faculty. Efforts have been focused on various endeavors guided by the newly implemented Continuous Improvement Plan. The implementation of various teaching pedagogies, numerous guest speakers, internship requirements and hands-on student projects for local industry have all served as a foundation for the current growth and success of the program.

Following an ABET Accreditation visit in November 2007, the program received high regards and praise to accompany their full accreditation. Upon approval by the ABET Board, in June 2008, the program was designated as one of only eight safety bachelors' programs internationally to obtain ABET accreditation. To supplement the accolades of receiving accreditation, the Board of Certified Safety Professionals (BCSP) now deems all students that graduate from FSU's Occupational Safety program as Graduate Safety Practitioners (GSP). This is a designation that only graduates from accredited programs obtain as they progress towards their professional designation of Certified Safety Professional (CSP). As a GSP, graduates with four years of industrial experience are eligible to take the CSP exam. Graduates from non accredited programs must take an additional professional exam prior to being eligible for the CSP exam.

As a part of maintaining the ABET accreditation, students are required to participate in an approved internship in safety or closely related field. During recent years



students have participated in a number of internships. Some of the employers have included: Consol Energy, Allegheny Energy, CNX Corporation, Petroleum Development Corporation, AEP, Traylor Brothers, West Virginia University Safety and Health Extension, Pearson Security, MSES Consultants, Inc., U.S. Army Office of Director of Emergency Services, FSU Office of Public Safety and Morgantown Fire Department.

To foster student learning on a higher level and to update the Safety lab, the Occupational Safety program has purchased various pieces of equipment. This equipment investment also allows the students to work with current technology and software. Some of the equipment includes: Airchek 5000 sampling pumps, Quest dosimeters and

sound level meters, light meter, anemometer, scale model scaffolds, scale model trench box, scale model ladders, rigging kits, spill kit and containment, confined space exhaust unit, respiratory fit test kit, and many other smaller items. The Cheat Lake Volunteer Fire Department also donated several SCBA's and pass devices that can be used by the students while performing confined space rescue lab activities.

The American Society of Safety Engineers has also been very busy in the past year inviting guest speakers on campus to speak with students. ASSE routinely sponsors lunch session guest speakers for students to hear about various industries supporting the field of safety. Some of these speakers have included representatives from, Brickstreet, OSHA, NIOSH, Kiewit Construction and Consol Energy. ASSE has also started a Facebook web site to maintain contact with current students as well as graduates of the Occupational Safety program. So far this has been well received.

### College of Science and Technology Mission

To promote effective student learning in science, math and technology and to prepare top-quality graduates for their future endeavors, including graduate student, employment, and other professional or personal goals.

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# College News

## Dean's Message

A little over a year ago, the global financial markets experienced economic upheaval. This resulted in a recession that has taken a toll on many families. The severe economic downturn hampers the ability of families at every level of society to find the necessary resources to pay for college. Yet, higher education continues to be the best method to expand one's intellect and begin a rewarding career. Fairmont State University (FSU) and the College of Science and Technology have a responsibility to educate the next generation of scholars and leaders who can revitalize our economy and make the necessary discoveries to improve society.

Scholarship support is critical to our goal of maintaining access to higher education. FSU continues to increase its investment in students with the greatest financial needs. This is being done to help reduce the dependence on student loans for those from lower- and middle-income brackets. In addition, the institution is not increasing its tuition for the upcoming academic year.

At FSU, more than 80 percent of our students receive some form of scholarship or financial aid. At this level, students receive some of the highest shares of academic support among the universities in West Virginia. Yet, state and federal support for financial aid in the form of grants, loans, and work-study continues to decline across the country.

Students from rural areas face numerous obstacles in applying to, being accepted, and paying for college. They often attend schools that lack resources, such as Advanced Placement courses and ACT or SAT preparation found in districts that are more prosperous. In addition, students in West Virginia currently perform below national assessments in mathematics and science, and these conditions places them at a disadvantage when applying to post-secondary institutions.

The above conditions have negative consequences in the ability of some students to fund their education and be prepared for the academic challenges as a first-year student. To counteract some of these problems, the faculty of the College of Science and Technology has continued to update its curriculum and retention strategies. For example, the College provided \$32,000.00 to hire additional tutors in Chemistry, Mathematics, Physics, and in selected Engineering Technology programs. Additionally, the University tracked students that self-reported problems they were experiencing in funding their education or with their academic studies. Students were then contacted and provided with additional resources to help make them successful.

We plan to continue our efforts to make post-secondary education more affordable and helping students to be successful in their academic studies. This will be accomplished by securing more financial aid dollars for students, providing more opportunities for work-study programs, and securing the necessary resources to provide more tutoring assistance. Increase scholarship support helps ensure that one's financial means never stands in the way of acquiring an advanced degree at FSU.

To learn more about giving opportunities related to scholarships for Fairmont State University students, I encourage you to visit: <http://www.fairmontstate.edu/admin/foundation/default.asp>

Dr. Anthony F. Gilberti, DTE  
Dean, College of Science and Technology

*The College of Science and Technology at Fairmont State University is proud to be the home of bright and forward-looking students. We have an outstanding faculty and a dedicated staff.*

## Two of the Top 10 FSU Athletes of the Decade from the College of Science and Technology

Recently the Times West Virginian published an article listing the top ten FSU athletes in the past decade. Alyssa Childers participated on the softball team from 2005-2008. She holds several FSU records and maintained impressive statistics. She graduated with a biology degree and an overall GPA of 3.82. Kristy Rausch was also a member of the FSU softball team. Ms. Rausch is the all-time leader in games played, games started, hits, runs scored, home runs, and RBI. She maintained a perfect 4.0 throughout her academic career as a triple major in mathematics, math education, and computer science.



## Two Alumni Combine for Grant Proposal

Lincoln High School was one of 45 schools in West Virginia to submit a grant application to the School Innovation Zone Act. Kim Goff and Alicia Nelson, two FSU graduates created the grant proposal. Their project combines algebra I and freshman physical science, and then creates a hands-on, project-based course. The teachers were

hoping to receive the \$3,000 in funding they requested in order to travel to schools that are already implementing project-based learning and observe those courses. During the month of January, it was announced that Lincoln High School was one of 19 schools statewide to receive funding. The school will receive \$6,990 in funding.

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## College of Science and Technology Hosts 56th and 57th Annual West Virginia State Science and Engineering Fair

The 56th annual West Virginia State Science and Engineering Fair (WVSSEF), hosted by the College of Science and Technology, was held at FSU on Saturday, March 21, 2009.

The fair welcomed 62 high school students representing 16 schools from across the state to the FSU campus to share ideas, showcase science and technology projects, and compete for awards and sponsorship to the Intel International Science and Engineering Fair.

The WVSSEF provides students with the opportunity to submit a project in one of 13 science, energy, or engineering categories. University staff, faculty, and state professionals served as judges for the event.

Awards in each category, as well as special awards from outside organizations were presented to the students in an afternoon ceremony.

The Grand Prize winning team of Nick Tabidze and Amanda Weber from Musselman High School received sponsorship to the Intel International Science and Engineering Fair in Reno, Nevada, on May 10-15, 2009. The winning medicine and health project was titled Hidden Dangers of an Everyday Convenience.

Pratt & Whitney, The Spectroscopy Society of Pittsburgh, the West Virginia Research Fund administered by the Division of Science Research, and the West Virginia Academy of Science made financial contributions to the 2009 WVSSEF.

The 57th Annual West Virginia State Science and Engineering Fair, hosted by the College of Science and Technology, was held at FSU on Saturday, March 27th, 2010. This year's fair included 66 participants from 16 high schools. The Grand Prize was awarded

to Swetha Doppalapudi from Morgantown High School for her project entitled Does *Azadirachta indica* affect the motility and the life cycle of *Meloidogyne incognita*?. She will be traveling to San Jose, CA the week of May 9-14, 2010 to compete at the Intel International Science and Engineering Fair. The West Virginia Research Fund administered by the Division of Science Research and the West Virginia Academy of Science made financial contributions to the 2010 WVSSEF. This was the third year hosting the WVSSEF for FSU and the College of Science and Technology. The next fair will be held at FSU in March, 2011. The goal of the WVSSEF is to reward student achievement in science and engineering research while providing resources to enhance project development, safe experimental design, and presentation.

## College of Science and Technology Hosts the 2nd Annual Engineering and Science Challenge



During the month of September 2009, the College of Science and Technology hosted the 2nd annual Engineering and Science Challenge. This all-day event was designed to provide hands-on activities that introduce the programs offered at the College of Science and Technology. Attendees had the opportunity to participate in three of the 19 competitive challenges faculty had planned, such as "Whodunit," "Chemistry to Dye For," and "Finding and Returning the Lost Probe." Once the day is complete, the school with the most first place finishes is awarded the "Traveling Trophy." There were approximately 100 high school students from four different high schools in three different counties in attendance. At the conclusion of the day, North Marion High School in Marion County won the 2009 Engineering and Science Challenge.

## Faculty Partners with Carnegie Museum

During the summer, Angela McKeen was contracted as a part of the Carnegie Museum of Natural History's Educational Advisory Panel, one of only two educators in this state on the panel. As a result of this work and her past training with Carnegie Museum of Natural History (CMNH), they agreed to partner with her elementary science pre-service teachers in her Science Methods class.

This partnership with Fairmont State means that her class will be participating with

CMNH researchers, scientists, and educational specialists in order to prepare to teach the Science After School program that she runs each semester. These students will also be fully trained and certified to teach with actual specimens and supplies loaned from Carnegie before they ever graduate from Fairmont State. This training will follow them as student teachers and after graduation.

In order to fulfill her part of the partnership with Carnegie, she and her students

traveled to Pittsburgh to the museum a few times during September and October. The initial trip was a behind-the-scenes look at what goes on at Carnegie from a research and education standpoint, as well as an investigation into what materials the students might receive on loan. During other visits they collected museum materials with which to teach the Science After School program during the month of October and returned the loaned material.

## DEPARTMENT OF BIOLOGY, CHEMISTRY AND GEOSCIENCE

### Biology Faculty Member Receives Foundation Award

The Fairmont State Foundation Center for Teaching Excellence has announced that Dr. Donald Trisel, Professor of Biology, is a 2009 Foundation Award recipient. Trisel received the Foundation Fellow Award for his research proposal that focuses on the honeybee queen rearing process, specifically the technique of artificial insemination.

“This award will contribute toward my professional development as a researcher, a professor and as a beekeeper,” Trisel said. “Additionally, this project has potential benefits for local and state beekeeper associa-

tions and the economic stability of the West Virginia beekeeping industry.”

Trisel will attend a series of six conferences and workshops that will allow him to hone his skills and interact with other beekeepers and bee industry professionals, including two workshops led by Dr. Sue Cobey, a world renowned expert in queen rearing and insemination. In addition to the Foundation Award, Trisel received the Regional Service and Engagement/Economic Development (RSEED) grant through the Center for Teaching Excellence in support of

this project.

Each year, the Faculty Development Committee considers applications for these grants and forwards recommendations to the provost and vice president for Academic Affairs and to the president for final approval. Each applicant must submit a proposal outlining the nature and purpose of their project, along with a detailed budget and a concrete explanation of how their project will benefit the campus community. The awards are funded by the Fairmont State Foundation, Inc.

### High School Students Attend CSI Camp

Crime Scene Investigations Camp at FSU began on June 22, 2009. High school students from Harrison, Marion, Monongalia, Barbour, Taylor and Preston counties spent eight days learning the various aspects of crime scene investigations.

Students became familiar with the many facets of crime scene investigations, much like the crime scenes being investigated right now by local law enforcement. Students learned about blood testing/typing, crime scene sketching, soil analysis, fingerprints, bone analysis and DNA analysis. In addition, students gathered evidence throughout the week and participated in a mock trial on the last day of camp. Students also had a chance

to tour FSU’s crime scene house.

“Students have always enjoyed seeing how to perform the techniques involved in a forensic science case,” said Dr. Mark Flood, CSI camp director. “The atmosphere of the camp is fun and relaxed. The camp is full of hands-on activities that make their learning enjoyable.”

The camp is sponsored by the FSU GEAR UP partnership. GEAR UP, which stands for Gaining Early Awareness and Readiness for Undergraduate Programs, is a federally-funded grant which allows programs like CSI Camp to exist.

“GEAR UP is an amazing program that helps students understand the value of attending college,” Flood said.

### Biology Faculty Member Honored for Excellence

Dr. Pamela Davey Huggins was honored at the recent 32nd Annual Academic Awards Celebration. The Harold & Roselyn Williamson Straight Award for Outstanding Teaching is intended to honor or to encourage outstanding, innovative or otherwise distinctive teaching or scholarship at Fairmont State. Nominations and applications are invited and received by the Faculty Development Committee and the Center for Teaching Excellence, with final selection of the recipient for an annual cash award to be determined by faculty representatives to the committee.

Huggins has been a member of the Biology faculty since 2002. In 2007, she delivered the Presidential Lecture titled “Evolution, Creationism and Intelligent Design: The Conflict in Public Education.” She has taught at the Governors Honors Academy, serves as a consulting editor for Marine Ecology Progress Series and directs a group of undergraduates informally known as the Fishheads.

Huggins has delivered campus lectures on human sexuality, supervised undergraduate research projects, and participated in learning communities. She has been chair of the Curriculum committee for three years and recently served on the Presidential Search Committee. She has been described by her students as the teacher who offers comfort and one who has her office open to them when they need to recover their confidence and sanity.



# Deb Hemler Participates in Formation of the West Virginia Math, Science and Engineering Coalition

During February 2009, Professor Deb Hemler participated in the West Virginia Math, Science and Engineering Coalition.

This is an advisory board to the West Virginia Department of Education (WVDE) and consists of 41 members from WVDE, university professors, county Board of Education administrators, public school principals and teachers, industry, legislators and informal science centers educators. The goal was to create a coalition that will serve in an advisory capacity to identify, plan, and advocate for math, science and engineering

programs for students of the 21st century that address the necessary skills of graduates in the professional path as well as entry level workers.

During the meeting in February the coalition evaluated a 21st century classroom video, brainstormed about the qualities and skills needed for the 21st century graduate, WVDE departments described all initiatives underway and the WVDE presented its vision for students. Also, science programs are currently reworking the state Content Standards and Objectives, implementing a

Kit-based science program (SIMPLE) for Elementary Science teaching, as well as endorsement upgrades to provide more physics and chemistry teachers.

Hemler returned from this meeting with a better understanding of the WVDE plan for K12 education.

"If I understand what they want the learner to know and understand, then I can adapt my science and methods classes to model those pedagogies and include 21st century skills outcomes," she said.

## Student Research Project Aids West Virginia Beekeepers



A Fairmont State University student research project gave state beekeepers an opportunity to have bee samples tested for disease for free.

Senior biology major Jessica Balsei conducted a research project to investigate the distribution and prevalence of Nosema disease in West Virginia honeybee colonies. Dr. Donald Trisel, Professor of Biology, was the faculty advisor for the project.

"Nosema apis and N. ceranae are being implicated as potentially important contributors to the Colony Collapse Disorder that is causing problems for beekeepers around the world. We requested that beekeepers from across WV send us samples of bees for a

free microscopic analysis to determine the degree of infestation," Trisel said.

The community service research project allowed individual beekeepers to make informed decisions regarding the management of their colonies. The summary results were also of interest to beekeepers throughout the region as more is learned about the problems bees are facing.

Trisel attended the Sept. 25 Fall Meeting of the West Virginia Beekeepers Association at Jackson's Mill and accepted bee samples for free analysis at that time. Participating beekeepers also needed to complete a short survey to provide additional background information and data for analysis.

## Chemistry Program Approved by the American Chemical Society

The Fairmont State University chemistry program is now included on the list of institutions approved by the American Chemical Society, becoming the fourth university in the state of West Virginia to do so. To obtain this approval, the chemistry program went through a review process governed by the ACS Committee on Professional Training. Approved programs offer their students a broad-based and rigorous chemistry education that provides them with the intellectual, experimental, and communication skills to participate effectively as scientific professionals. Offering such a rigorous program requires an energetic and accomplished faculty, a modern and well-maintained infrastructure, and a coherent chemistry curriculum that incorporates modern pedagogical approaches.



## DEPARTMENT OF COMPUTER SCIENCE, MATH AND PHYSICS

### Project AMPLE Motivates Teens to Choose Careers in Math, Science



Students from seven North Central West Virginia counties spent time learning about mathematics, science, graphics, occupational safety and computers during a free, two-week residential program at FSU.

Project AMPLE (Action Math and Physics Laboratory Experiences) Extended is a summer enrichment program in science, mathematics, engineering and computer technology for current 10th-grade students from designated GEAR UP schools. The program

began June 21, 2009, and ran through July 1. The purpose of Project AMPLE Extended is to motivate students with high potential to consider future careers as scientists, engineers and mathematicians.

Twelve students from Harrison, Marion, Monongalia, Preston, Pendleton, Tucker and Upshur counties participated in this year's program.

Dr. Erica Harvey, Chemistry professor; Dr. Susan Goodwin, Mathematics profes-

sor; Stephanie Yoho, Mathematics teacher at Fairmont Senior High School and a math and chemistry alumna of FSU, were project directors.

"The underlying message of our program is that the exciting careers available in science, math and technology all require strong math backgrounds. Students need to take math, and science classes every year during high school, so that they will have choices of careers when they start college," Harvey said. "They should also take advantage of opportunities to learn computer skills."

One major goal of Project AMPLE Extended is to help students, especially those from groups historically under-represented in the sciences, discover whether they might have potential for a career in math, science, graphics, engineering, or computer science. Students complete a rigorous two-stage application process to become part of the program.

Dr. Andreas Baur of the FSU Chemistry program directed the Science program. Dennine LaRue of the FSU Math program directed the Math program. Don Tobin of the FSU Computer Science program and Dr. Martina Bachlechner of the FSU Physics program co-directed the Applied Computation program. Jayvijay Raol of the Pierpont C&TC Graphics program directed the Video/Web program. Dr. Melissa Abbott and Kim Murphy of the FSU Occupational Safety Program directed the Safety program.

## Physics Workshop

This summer Dr. Martina Bachlachner conducted a physics workshop on the FSU campus.

Over the summer, Bachlachner developed and taught online physics classes for high school teachers to earn their certificate to teach physics. The funding was provided by the NASA Langley Grant. During the month of June 2009, Bachlachner invited Kelly Heldrith, a physics teacher from Jefferson High School, Shenandoah Junction, and her students to participate in a four-day workshop on research and fun in physics.

This allowed Heldrith to conclude her work on her certificate and to provide her with some further perspective. The main

focus of this workshop was on simulation using VPython, in particular atomistic simulation.

The hands-on activities during the workshop included the following:

Dr. Steven Haynes hung a pendulum from the fourth floor ceiling in Hunt Haught Hall to the first floor to determine the gravitational acceleration.

There was a trip to Pricketts Fort to participate in tomahawk throwing with Haynes

Participants viewed the sunset on the highest point in Marion County with Haynes to measure the radius of the Earth.

Haynes showed demonstrations and involved students with angular momentum

activities and Bernoulli effect, Electricity and Optics activities.

Students participated with bubbles and anti-bubbles with Dr. Mary Ann Clark from the Math Department at West Virginia University.

Participants learned about musical instruments.



## DEPARTMENT OF TECHNOLOGY

# Architecture Students Participate in Canstruction

Fairmont State University architecture students participated in the third annual Canstruction competition in Charleston.

Teams of architects, engineers and students mentored by professionals compete to design and build giant structures made entirely from full cans of food, which are donated to area food banks. The FSU architecture program student organization, the American Institute of Architecture Students, entered the team competition.

Awards were presented Feb. 27, 2009, for the best designs. FSU's team won the Best Architectural Theory Award. The team creations were on display at the Clay Center in Charleston until March 1, 2009.

FSU student Brandi Smith, a junior who participated in the event, told the Charleston Daily Mail that it would be nice to win, but that helping the community is the main reason for the competition. The FSU team's project is called "Downsizing Hunger." Smith also said the event was a great way to get experience and to network with the architecture community.

"The architecture students saw this as an opportunity not only to compete in a nationally recognized design competition, but also to raise the awareness of the fight against hunger, while contributing to our local community," said Philip Freeman, an Architecture program faculty member. "This has been a project in the works for the last three months. They worked hard getting support, developing the design and making it



*Canstruction Group*

buildable; they are making an extra effort to contribute locally."

The students deconstructed their design and brought their cans of food back to Fairmont to donate to the Soup Opera on March 2, 2009.

"With the help of local design industry firms Omni Associates, Paradigm Architects, Mills Group Architects and Astar Abatement, Inc., our students were able to raise \$1,400 to purchase 2,200 cans of food," Freeman said.

# ASCE Competes in National Steel Bridge Competition

FSU's American Society of Civil Engineers Student Chapter continued its tradition of excellence by representing our region at the National Student Steel Bridge Competition.

For the second year in a row, the FSU steel bridge team placed second in the region, and in 2009 enjoyed a first place finish in Aesthetics. The National Student Steel Bridge Competition, sponsored by ASCE and the American Institute of Steel Construction, was held at the Thomas and Mack Area in Las Vegas. It was hosted by the University of Nevada, Las Vegas, on May 22-23, 2009.

The FSU 2009 Steel Bridge team com-

pletely overhauled their design process from last year and produced a bridge that was lighter, stronger and more easily constructed. The design was based off an inverted Truss design with very intricate members designed to lower weight, while maximizing performance. The focus was to improve the connections and decrease construction speed.

Members of the FSU Steel Bridge team include Captain Kostas Fintrilis, Co-Captain Tony Clark and team members Josh White and John Lafferre.

The steel bridge rules are very detailed; the design replicates a prototype of an actual steel bridge. The teams are required to build

the bridge on-site over a simulated body of water in a timed construction event. The span is limited along with the size of each member. Upon completion, the bridge is loaded both vertically and laterally and the corresponding deflections are measured. The bridge is judged on overall weight, construction time, cost, efficiency, economy and deflection.



## FSU Team Places at National Concrete Canoe Competition



“FSU’s American Society of Civil Engineers Student Chapter had an impressive showing at the 22nd Annual ASCE National Concrete Canoe Competition in Tuscaloosa, Ala., on June 11-13, 2009.

FSU’s concrete canoe team placed 17th overall in the competition, hosted by the University of Alabama, and 10th in the Final Product category, the first time the team had ever placed in this category. Team Co-Captain Tabitha Neuhauser received a \$1,000 scholarship from Baker Concrete. FSU’s ASCE Student Chapter was presented with the Ridgeway Finalist award, which is the top award for all 300 international ASCE student chapters based on overall activities in the chapter’s annual report. FSU also received the Zone 4 Governors Award, the top award for a six-state zone. FSU remains the only state university to be invited to compete at the national level. FSU has represented the region at the National Concrete Canoe Competition the last five years, with a 20th place finish last

year in Montreal, Quebec, Canada.

The 2009 FSU Concrete Canoe Team was led by Charlie French, Captain, and Co-Captains, Tabitha Neuhauser and Brian Lake. Other team members were Josh Smith, Justin Tennant, Lauren Allan and Stephanie Slaubaugh.

The concrete canoe competition comprises four main categories which are equally weighted. These include a technical paper, an oral presentation, the product and display, and five races. The students must follow strict rules that dictate what their concrete matrix can consist of and, of course, the boat must float, to be eligible for the races. Building on the traditions of previous teams, last year’s team wanted to take a new, radical approach for their 2009 entry, “The Punisher.” One of the team’s main focuses was to improve the overall aesthetics, while reducing the weight of the canoe. The previous year’s entry, “Black Angel,” weighed in at a hefty 260 pounds. Input from the paddlers

confirmed that the heavier canoe took too long to get to top speed during the races.

This year the Fairmont State University’s American Society of Civil Engineers Student Chapter continues its tradition of excellence and will again represent our region at the National Concrete Canoe Competition.

FSU’s ASCE Student Chapter won first place in the Concrete Canoe Competition for the seventh consecutive year over the weekend of April 10th and 11th at the Virginia’s Conference, hosted by Catholic University of America in Washington, D.C. The conference brings together 13 schools from West Virginia, Virginia and Washington, D.C., and provides students a chance to gain valuable hands-on experience by competing in many engineering-related competitions.

The 23rd Annual ASCE National Concrete Canoe Competition will be June 17-19, hosted by California Polytechnic State University, San Luis Obispo. FSU remains the only state university to be invited to compete at the national level. FSU has represented the region at the National Concrete Canoe Competition the last six years.

The 2010 FSU Concrete Canoe Team is led by Charlie French, Captain. Co-chairs are Tabitha Neuhauser and Brian Lake. Other team members are Stephanie Slaubaugh, Lauren Allan, Lindsay Menas, Justin Tennant, AJ Fitzsimmons and John Lafferre. Other participants are Matt Foltz, Cole Dodd, Thomas Moss and Elana Slaubaugh. The ASCE faculty advisor is Tia Como, P.E.

Founded in 1852, the American Society of Civil Engineers (ASCE) represents more than 137,500 members of the civil engineering profession worldwide, and is America’s oldest national engineering society. ASCE’s vision is to position engineers as global leaders building a better quality of life.”

## Students Honored by AIA-WV

During the West Virginia Chapter of the American Institute of Architects’ 2009 design awards competition, a jury of architects, comprised of members of the organization’s scholarship committee, selected two FSU student projects for recognition and commended the body of work represented by all of the students.

Brandi Smith, a senior architecture student from Buckhannon, W.Va., was honored with a \$750 scholarship as winner of the Jeffrey Mayfield Design Competition for

her concept for a sustainable transportation center proposed for the South Side of Pittsburgh. She is the president of the Fairmont State Chapter of the American Institute of Architecture Students and plans to pursue a graduate degree in architecture upon receiving her degree from FSU.

The Jeffrey Mayfield Scholarship is named in honor of the late Professor Jeff Mayfield, and is awarded to the student whose work demonstrates the highest regard for architectural principles and inquiry.

Ashley Shaver of Tunnelton, W.Va., a junior, was awarded a \$500 scholarship as the winner of the West Virginia Society of Architects Student Design Competition for her concept for an observation tower proposed for the South Side of Pittsburgh. Shaver is an active member of the Fairmont State Chapter of the American Institute of Architecture Students and plans to pursue graduate education in architecture upon completion of her degree at FSU.

# Student Researchers Test Energy and Cost Saving Techniques on Campus

When you head to the roof of a building wearing a harness, you tend to attract attention. Student researchers Justin Cullen and Kiley Wilfong have had a lot of explaining to do.

Their sunshade, suspended from the roof of the Engineering Technology Building by cotton ropes, sparked quite a few questions. In the Education Building and Hardway Hall, staff members wanted to know why they should only use one certain sink in the women's restroom.

Justin, from Point Pleasant, and Kiley, from Williamstown, both senior Architecture majors, are exploring small changes that can make a big difference in FSU's campus energy management. As members of the American Institute of Architecture Students (AIAS) and Students Taking Action in Nature's Defense (STAND), they are passionate about "green" living.

The pair traveled to Chicago in the fall of 2007 to attend Greenbuild, the nation's largest sustainable building conference, where they found a lot of inspiration. In response to the trip, they completed a research project that compiled campus energy data in the spring of 2008. In the summer of 2009 they put what they learned to the test.

Through the College of Science and Technology's Summer Undergraduate Research Experience (SURE), Justin and Kiley received a \$3,200 grant to study techniques to make the campus more energy efficient. SURE is part of a NASA supported grant to promote critical thinking and problem solving skills in science, technology, engineering, and mathematics. The pair hopes to generate campus interest in fighting solar heat gain and cutting down water consumption.

"The Architecture Department is very interested in design-build projects that will help the campus and the community. It's not just a campus for students and faculty, Fairmont State is part of the community. Saving energy and money is good for everyone," Kiley said. "Most people would do more if they knew what to do. It's a chain of events. When you become informed, you inform other people. Justin's parents and grandparents, they always recycled aluminum cans, but now they do plastics, steel cans, glass and newspapers. One person sharing information with another person helps to spread awareness. In the Honors wing in Bryant Place, we are recycling freaks. If you throw away a plastic bottle there, we jump on you."



Justin added that many student organizations on campus are interested in being more "green."

"Green living is about more than just recycling bins. STAND is trying to make people more aware that there's a lot farther you can go. People just need to be informed," Justin said.

Philip Freeman, Assistant Professor of Architecture, served as the pair's faculty mentor.

"It is exciting to see two outstanding students interested in learning more than just theories, and experiencing firsthand the application of sustainable principles," he said. "They are among the most motivated students I have taught."

Justin and Kiley studied solar heat gain on the south-facing glass façade of the Engineering Technology Building using a 12 foot by 4 foot sunshade they built out of PVC pipe, duct tape, and rigid foam insulation. The sunshade covered Room 413, the office of Occupational Safety faculty member Kim Murphy. They used Room 414, the office of Mechanical engineering technology faculty member Jim Goodwin, as a control room using traditional window blinds. They took temperature readings at set times in both rooms when the sunshade is up to determine which shading technique is more effective. They recorded the temperature with the blind closed and open, which is a more practical application for how blinds are really used.

"Sunlight doesn't hit the glass, it bounces

off the shade. Another benefit is that you can see daylight and the view from the window because the shade is really unobtrusive. Ms. Murphy's office has remained a constant 82 degrees with the shade," Kiley said.

Jim Goodwin's office has been considerably warmer, especially with the blind open, and he was a really good sport about that, they said.

When they raised the sunshade on sunny days, they usually also raised a few eyebrows; it is unusual to see students on a roof. As part of their project, the pair had to write a safety plan that follows OSHA standards and was approved by Murphy and the Department of Public Safety. When on the roof, Justin wore a safety harness connected to a lifeline since he is the only one to approach the edge, and they did not go up if the roof was wet or if the wind speed was over 12 mph, which is anything over a 3 on the Beaufort wind scale.

The pair has taken temperature readings in other buildings that have a lot of sun exposure to show that solar heat gain is a valid concern campus-wide.

"We hope to not only improve the working and learning conditions on campus, but also save the university money in energy costs," Kiley said. "Many air conditioners are being run year-round on campus, and we hope to show that this does not need to happen."

For their water consumption project, Justin and Kiley installed hot and cold water

## Student Researchers

*continued from page 9*

meters on a sink in the second floor women's restroom in Hardway Hall. For seven days, they monitored how much water is consumed. Then they changed the aerator on the sink from a 2.2 gallon per minute aerator to a 0.5 gallon per minute aerator. The new aerator should increase the water pressure but use one-third less water and will be monitored for another seven days. They conducted the same experiment in third floor women's restroom in the Education Building. They hope to show that by purchasing aerators for each faucet, which is very inexpensive in comparison to purchasing a new faucet, FSU could save many gallons of water and dollars on energy costs.

"Everyone in Hardway has been really excited and interested in what we're doing. Every day when we come over to check the sink, there are people there outside the restroom door to ask questions," Kiley said.

"At Hardway, we're getting really accurate data. When we first measured, we thought something had gone wrong. We found that 41.3 gallons of hot water had been used and 9.1 gallons of cold water in one day. That's really high. In 49 weeks, that would be 10,900 gallons if the usage remains consistent with data collected so far. We're really looking forward to seeing how the aerator does."

The pair wrote a paper in September 2009 and will make a presentation in April 2010 as part of the Celebration of Scholarship. They hope to present their findings to the administration and maybe Fairmont City Council.

"We've had a lot of fun. The most difficult part was building the shade," Justin said.

Kiley added that "jumping through all the hoops" with safety and working with multiple departments was also a challenge in the beginning but has worked out well.

"Mrs. Kim Murphy, Mr. Jim Goodwin, and Dr. Anthony Gilberti have been very helpful. We were allowed to borrow most of our equipment from various departments. The Physical Plant has been really helpful, and we appreciated that they turned over data to us. Kit Conner, Barbara Fallon, and Carol Tannous have been very supportive. The different departments on campus focus on different disciplines, but they have crossing interests. It's been neat finding all these people are going to support you," Kiley said.

"It's nice to know we have the support of staff and administration on campus," Justin said.

## Gary Zickefoose Honored with Meritorious Service Medal

An FSU faculty member on active duty in Afghanistan was recently awarded The Meritorious Service Medal for his efforts in rebuilding the area near Kabul.

Lieutenant Colonel Gary M. Zickefoose received the medal for meritorious service in support of Operation Enduring Freedom as a quality assurance representative for the U.S. Army Corps of Engineers at Combined Security Transition Command—Afghanistan. Zickefoose's efforts were instrumental in the success of construction projects in the greater Kabul area.

During the initial portion of his tour of duty, Zickefoose worked as a liaison officer with the 82nd Airborne Division at the Bagram Army Airfield. He later worked in Kabul, Afghanistan, 100 miles south of Bagram, as a resident engineer. As resident engineer, project engineer and contracting officer's representative, he was responsible for over 25 U.S. Army Corps of Engineers projects work in excess of \$200 million in 2007 and 2008.

The certificate accompanying the medal states: "His performance in a combat zone reflects great credit upon himself, the Combined Security Transition Command—Afghanistan, the U.S. Central Command and the U.S. Army."

As the resident engineer and COR at Kabul East, Central and North Residence Offices, LTC Zickefoose used his leadership, technical competence in construction management and engineering, plus knowledge of USACE contracting regulations to lead a team of both American and Afghan engineers, architects, project engineers, and quality assurance representatives overseeing the design-build contracts for multiple projects, including the AF Detention Facility, DEA-NIU Campus Construction, ANA Class II, IV and VII Logistics Depot, ANA Bulk Fuel Storage Depot Khujia Rawash, and CNPA HQ SIU & AMS.

A narrative accompanying the medal states the following: "LTC Zickefoose fully believes in teamwork not only within the USACE sections but with the customer, the contractor, our coalition partners and the U.S. taxpayer. His efforts included a partnering approach to provide alternative avenues for our building contractors to reach fast-track project milestone benchmarks with a good quality end-product that would satisfy the needs of the customer and the Afghan people.

"LTC Zickefoose believes in 'capacity building.' His concern and treatment of the Afghans he associated with, supervised and mentored will help provide future economic growth and stability.

"Without exception, every person who served with him has the highest respect for him as an engineer and a leader. It is individuals like LTC Gary Zickefoose that makes the Afghanistan District a success and makes the U.S. Army Corps of Engineers the 'world's premier public engineering organization.'"

At FSU, Zickefoose is an Associate Professor of Civil Engineering Technology. He has been a faculty member at Fairmont State since 1984. He is a professional engineer and holds a Bachelor of Science degree in Civil Engineering and a Master of Civil Engineering degree, both from North Carolina State University. He also holds a Master of Business Administration degree from West Virginia University. He is married to Jeanne Zickefoose, who is a teacher at Nutter Fort Elementary School in Harrison County.

Zickefoose started his career in the military as a member of the ROTC at NCSU. His father, the late Marble Zickefoose, retired from the U.S. Army as a Lieutenant Colonel, and both of his sons currently serve in the armed services. His son Greg is a pilot and Captain in the U.S. Air Force, and his son Brian is a Captain with the U.S. Army Corps of Engineers. Jeanne's father, Hank Ellis, is retired from the U.S. Navy Reserve as Lieutenant Commander.

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## AIAS Attend Grassroots Leadership Conference

During the month of July, a group of the American Institute of Architecture Students visited Washington, D.C., for the Grassroots Leadership Conference. This conference provides seminars on effective leadership, tips for motivating students and how to direct a successful AIAS chapter. Students meet leaders from across the country. During the conference students were also able to attend a session with guest architect discussing the future of architecture. After returning to FSU, students said they have ideas to improve recruitment, build their social network and how to become more involved with their campus community.

## Architecture Students Attend FORUM

During the 2009 winter break, two students, Steven Whitmore and John Reid, attended FORUM in Minneapolis, MN. FORUM is the premier gathering of architecture and design students. This brings an opportunity for the students and professionals to create connections, hence the theme for 2009 "Connections." The setting chosen for FORUM is always a place filled with incredible architecture and surroundings to explore.

The students explored the architectural photography workshop presented by George Heinrich, a native to Minneapolis as well as a world renowned photographer working for magazines such as Newsweek and National Geographic. The workshop included a full day of heightened visual engagement, new photographic technologies, and contemporary architecture. They gained knowledge in controlling the camera, as well as composing photographs. The workshop came to a close with a surprising private tour at the notable Guthrie Theater.

FORUM presented Steven with the opportunity to attend the Council of Presidents Meetings in regards to new officers of AIAS in 2010. At these meetings he was the voice of FSU's chapter in choosing a suitable delegate for each position. During those times John attended tours of Twins Stadium, the Target Center, and was able to explore the skyway through a scavenger hunt.

Each evening they were enlightened at the general session by a keynote speaker.

The first keynote speaker, Esther Sternberg, discussed discoveries that have revealed a complicated working relationship between the senses, the emotions, and the immune system. Another speaker they enjoyed was Peter Cavluzzi who focused exclusively on advancing a renewed interest in cities and urban architecture.

Their main goal of attending FORUM 2009 was to gain more knowledge on the program "Freedom by Design" and proceed with getting the program established at Fairmont State. Freedom by Design is the AIAS community service program that utilizes the talents of architecture students to radically impact the lives of people in their community through modest design and construction solutions. Vital modifications are made to enhance the homes of low-income and disabled individuals by addressing their struggles with everyday tasks such as bathing, ascending stairs, and opening doors. Their priority is improving the safety, comfort, and dignity of the home's occupants. Freedom by Design also teaches students how to resolve accessibility issues while simultaneously providing them with the real world experience of working with a client, mentorship from a local architect and constructor, and an understanding of the practical impact of architecture and design. Both students returned with new network connections as well as the ability to use their knowledge in the FSU community.

## *Alumni Spotlight Request*

Alumni are critically important to the success of past, present and future FSU students. Share your experience in the College of Science and Technology with others by completing a SciTech Alumni Spotlight. Profile forms can be obtained at our web site, [www.fairmontstate.edu/academics/collegeofscitech/scitechalumni](http://www.fairmontstate.edu/academics/collegeofscitech/scitechalumni) or by contacting the

SciTech alumni coordinator at [Sci-tech@fairmontstate.edu](mailto:Sci-tech@fairmontstate.edu) or (304) 367-4246.

To view current spotlights from the College of Science and Technology, visit [www.fairmontstate.edu/academics/CollegeofSciTech/Alumni-Spotlight.asp](http://www.fairmontstate.edu/academics/CollegeofSciTech/Alumni-Spotlight.asp)

# Calendar

**The College of Science and Technology hosts or co-hosts many outreach events. All events are free and open to the public unless otherwise noted. Mark your calendar for:**

**3rd Annual Engineering and Science Challenge – September 24, 2010**

**North Central Regional Science, Energy, and Engineering Fair – February 2011**

**West Virginia State Science and Engineering Fair – March 2011**

————— *Visit our online calendar* —————

**<http://www.fairmontstate.edu/academics/CollegeofSciTech/Outreach.asp>  
to get the latest updates on upcoming events**

## *Find Us on Facebook!*

The College of Science and Technology is now on Facebook.  
The college has created a group as well as a fan page. Just search for our name and join in!

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