

SciTech News

THE COLLEGE OF SCIENCE AND TECHNOLOGY AT FAIRMONT STATE UNIVERSITY

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ASCE Student Chapter Earns Two National Invitations, Concrete Canoe and Steel Bridge Go On To Compete in Nationals



ASCE Chair Tim Windland and Co-Chair Charley French complete the "swamp test" at the 2008 regional Virginia's Conference Concrete Canoe Competition.

For the fifth year in a row, Fairmont State University's American Society of Civil Engineers (ASCE) Student Chapter has earned the right to represent its region in the National Concrete Canoe Competition. This year, the Steel Bridge team has also earned an invitation to the National Steel Bridge Competition.

The National Concrete Canoe Competition took place June 18-22, 2008, in Montreal, Canada. The National Steel Bridge Competition took place May 23-24, 2008, in Gainesville, FL. The two FSU teams are seeking support to offset the costs of attending these national events.

Members of the FSU Concrete Canoe team were Tim Windland, captain; Charley French, co-captain; John Brown; Jeff Bonoventura; Bruce Degroot; Stephanie Slaubaugh; Jessica Griffith; and Hannah Hern. Members of the FSU Steel Bridge

Team were Kostas Fintrilis, captain; Brandon Hinkle, co-captain; John Lafferre; Anthony Clark; Travis Markley; Josh White; and Ken Hacker.

This year's regional competition, the Virginias Conference, took place on April 17-19 in Summersville, WV. FSU co-hosted the venue with West Virginia University Institute of Technology. The Virginias Conference annually brings together 13 civil engineering and civil engineering technology programs from West Virginia, Virginia and Washington, D.C. Two hundred thirty students participated in this year's conference. Participating schools were WVU, FSU, WVUIT, Bluefield State College, University of Virginia, Virginia Tech, Virginia Military Institute, Old Dominion University, Howard University, George Washington University, George Mason University, and Catholic University of America.

FSU's concrete canoe team enjoyed a first place victory, and the steel bridge team won second place. FSU also took third place in Problem Solving, second place in Concrete Bowling, second place in Concrete Frisbee, second place in Environmental, second place in Engineering Jeopardy, and best use of labels in Can-Do Structure. Tim Windland, a senior at FSU, won the Stafford E. Thornton Award given by the West Virginia ASCE Section. For the eighth year in a row, Tia Como, P.E., Faculty Advisor, received the Advisors Letter of Commendation. FSU's ASCE Student Chapter also received the 2008 Region 4 Governors Award from ASCE National for the overall activities recorded in the group's 2007 annual report. The award is evaluated by the national Committee on Student Activities each year.

Last year, the ASCE Student Club won the 2007 regional Virginia's Conference Concrete Canoe Competition and placed 21st in the invitation-only ASCE National Concrete Canoe Competition in Seattle, WA.

Mini-Baja Buggy Faces the Rigors of Competition

A team of 15 Mechanical Engineering Technology students from Fairmont State University competed with 100 colleges and universities from across North America, China, Brazil and Russia in the 33rd Mini-Baja East Competition.

The students traveled to Tennessee Tech University with their custom-built Mini-Baja race car for three days of competition from Thursday through Saturday, May 1-3, 2008. The competition, sponsored by the Society of Automotive Engineers, tests the students' skills at designing and building an off-road

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

After Years of Service, Chair of CSMP Looks to Photography, Horses



Celebrating his retirement, Dr. Dwight Harris, Chair of Computer Science, Math, and Physics collects Dr. Anthony Gilberti's signature on his "Science Geek" t-shirt. Dr. Steve Roof and Dr. Susan Goodwin prepare to add their names.

Dr. Dwight Harris, Chair of Computer Science, Math and Physics, announced his retirement earlier this year.

After completing his Ph.D. at the University of New Hampshire in 1969, Dwight worked at a small engineering school in Milwaukee for 20 years, the last two as Director of Academic Computing.

In the fall of 1991, he began work at Fair-

mont State College as a Full-time Temporary Professor at the Clarksburg Center. Harris' charge for that year was to establish a computer network, a physics lab, and begin teaching physics that spring semester.

Harris was offered a tenure track position in the fall of 1992. In January, 1994, he was appointed Assistant to the Chair of the Division of Science, Math, and Health Careers.

Until recently, he continued to teach physics at Clarksburg as well as a course in Linux/UNIX on main campus. A few years ago he gave up his Caperton Center office to begin teaching solely on the main campus. Since the formation of the College of Science and Technology, Harris has been Chair of the Department of Computer Science, Math, and Physics.

Upon retirement in May 2008, Harris intends to spend more time riding his horse and completing outside work. Eventually, he would like to explore digital photography work with his wife, possibly contributing pictures to Google Earth.

College of Science and Technology Hosts 55th Annual West Virginia State Science and Engineering Fair

The 55th annual West Virginia State Science and Engineering Fair, (WVSSEF) hosted by the College of Science and Technology, was held at Fairmont State University on Saturday, March 29, 2008. 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.

The fair brought 41 high school students, representing 14 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 winner, Sarah Sellers of Hedgesville High School, received sponsorship to the Intel International Science and Engineering Fair in Atlanta, GA, on May 11-17, 2008. Her winning mathematics project was titled *Eisenstein Prime Magic Square*.

Grand Prize Runner-Up was awarded to John Creamer of Jefferson High School for his zoology project, *The Long-Term Effect of Ethanol on Fruit Flies*.

The Spectroscopy Society of Pittsburgh and the West Virginia Research Fund administered by the Division of Science Research made financial contributions to the 2008 WVSSEF.

This was the first year hosting the WVSSEF for FSU and the College of Science and Technology. Next year's fair will be held at FSU on March 21, 2009.

New Engineering Technology Building Dedication

Fairmont State University and Pierpont Community & Technical College faculty, staff and students attended the dedication ceremony for Fairmont State's new Engineering Technology Building. A ribbon cutting ceremony and tours were provided at the May 9, 2008, event.

"The Engineering Technology Building is an outstanding addition to the Fairmont State University campus," said Dr. Anthony F. Gilberti, Dean of FSU's College of Science and Technology. "These facilities offer contemporary equipment and interactive classroom technology to aid in the instruction of our college students. The design and open space areas for student research will serve us well as we continue to prepare graduates to enter science, engineering, and technology careers."

Construction began in June 2006 on the new \$15 million building. The project involved extensive renovation of the existing two-story Technology Wing of Wallman Hall and the addition of two floors and about 40,000 square feet. The new facility houses programs for drafting; graphics; mechanical, civil, and electrical engineering technology; and safety and environmental engineering technology. Information systems and computer science and computer security will be moving to the second floor of the new building.

The new Engineering Technology building features two large lecture rooms and laboratory facilities for students. Landau Building Company was the general contractor for the new building. The building opened for classes in January 2008.

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at [http://www.fairmontstate.edu/academics/
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Science Bowl

The 2007 RESA VII Science Bowl was held on December 13, 2007, at Fairmont State University. The competition was hosted and sponsored in collaboration with RESA VII and Fairmont State University College of Science and Technology. High school students answer questions in chemistry, physics, biology, computer science, math and astronomy. Eleven teams participated in the event.

Bridgeport High School and Fairmont Senior High School, placing first and second respectively, will go on to compete in the West Virginia State Science Bowl competition. The top team from that competition will then compete in the U.S. Department of Energy National Science Bowl.

High School Students Showcase Results of Scientific Inquiry, Research

The North Central West Virginia Science, Energy, and Engineering Fair was held on March 1, 2008, at Fairmont State University.

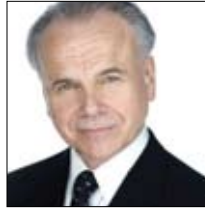
Students in grades six through twelve entered projects in one of nine categories: Energy; Engineering; Botany; Zoology; Chemistry & Biochemistry; Earth & Space Science; Physics, Math & Computers; Medicine, Health, & Microbiology; Behavioral & Social Sciences.

Faculty and staff judges looked for creative ability, scientific thought/engineering goals, thoroughness, dramatic, value, personal involvement, skill, and clarity when reviewing this year's 65 projects.

Awards in each category, as well as special awards from student organizations were presented to the students in an afternoon ceremony. The College of Science and Technology has been hosting the fair for over 20 years.

Next year's Central West Virginia Science, Energy, and Engineering Fair will be held at FSU on February 21, 2009.

2007 Carroll Lecture Brings Green Architecture to Campus



Randy Croxton

Randy Croxton, President of Croxton Collaborative Architects, P.C., presented two public lectures on September 20, 2007, as the 2007-2008 College of Science and Technology's Carroll Lecture Series. Croxton's presentations, titled *Green Awakening / Sustainable Reality* and *The Rebirth of Resourcefulness*, brought attention to the emerging field of green architecture.

Green architecture, also known as sustainable building, is an emerging concept that is redefining how we plan our cities, infrastructure, and construct buildings in a manner to effectively use environmental resources.

In addition to his lectures, Croxton met with students, faculty, and university administrators to discuss the future of green architecture in professional settings and its potential application on-campus.

Croxton is nationally recognized for his award-winning design projects and as a

pioneer and innovator in the achievement of environmental and sustainable architectural design. As architect or associated architect, Croxton has completed or has currently underway more than 40 building projects, master plans and commissioned strategic plan documents. More recently, he has been at the center of creating the Sustainable Design Guidelines and Reference Manual for the Port Authority of New York & New Jersey and the Lower Manhattan Development Corporation for the rebuilding of the World Trade Center.

The Carroll Lecture Series, co-sponsored by the Fairmont State Foundation, Inc. and the President's Office, is organized by the College of Science and Technology in honor of Robert L. Carroll who passed away on April 13, 1997, in Charleston, S. C., at age 87. Carroll was on the faculty of Fairmont State College as a Professor of Physics and head of the Physics Department from 1946 to 1956.

Please visit our calendar for additional information on the 2008-2009 Carroll Lecture Series.

Mini-Baja Buggy *continued from page 1*

vehicle that can sustain itself through rough terrain and water. Capping the different competitions in acceleration, braking, hill climbing, top speed, and suspension is the four-hour endurance race. In the past three years, FSU has won Overall Best Rookie Team, Briggs & Stratton Water Crossing and Overall Most Durable Race Car.

"Our successes on the track gave us another chance to show everyone just how good we engineering technology students are here at Fairmont State," said Andrew Lowther, lead mechanical engineering technology race-car designer and graduating senior.

The Society for Automotive Engineers provides some general guidelines for teams such as maximum width and the tube thickness in the steel of the roll cage. The design teams must follow the exact safety requirements as stated in the one-and-a-half inch thick specifications manual. Each car has to use identical 10 horsepower Briggs and Stratton engines giving the FSU car a top speed of over 40 mph.

"It sounds slow, but it wasn't when I hit a

tree," said race-car team leader, Sage Seifert.

The FSU team put much of its effort this year into the suspension system. Each wheel is independently suspended, while the rear wheels are under power and supported by over-sized shock absorbers. This makes the vehicle so stable that it faces little danger of tipping over on the rugged Tennessee terrain.

"The race is always marked by a pervasive spirit of camaraderie, helpfulness, and good cheer. Competitors help each other throughout the event," said Merle Thomas, Assistant Professor of Mechanical Engineering. "This is especially true for the Fairmont State University and West Virginia University teams. Last year, the FSU car was about to be disqualified by the lack of some almost-impossible-to-get safety washers when the team from Camden County College of New Jersey gave us some of their spares."

The Society of Automotive Engineers has more than 84,000 members -- engineers, business executives, educators, and students from more than 97 countries -- who share information and exchange ideas for advancing the engineering of mobility systems.



Staff News

Staff Presentations

• **Dr. Don Trisel**, Professor of Biology, gave a poster presentation, *Diurnal temperature variations between forest, field, and honeybee colony microhabitats*, at the 2007 National Convention of the Society of American Foresters on October 23-27, 2007, in Portland, OR.

• **Dr. Joe Riesen**, Professor of Mathematics, shared his guitar playing and singing in the Celebration of Talents.

• **Angela McKeen**, Visiting Assistant Professor of Geoscience, gave a poster presentation, *Seeing Science Everywhere: Using the Arts to Teach Science in High Poverty Areas of Rural Appalachia*, at the American Association of Teaching & Curriculum and Teaching conference and the WVU Research Symposium.

• **Dr. Erica Harvey**, Professor of Chemistry, and Dr. Don Trisel, Professor of Biology, presented ideas for encouraging “green campuses” at an FSU Brown-Bag Lunch discussion. Topics to be discussed include

building and classroom design for sustainability, examples of green scientific research, and recycling and environmental awareness campaigns at campuses like Harvard. The info was gained from three conferences attended this fall, the Campus Technology conference in Washington, D.C., Society of American Foresters in Portland, OR, and the American Chemical Society National Meeting in Boston.

• **Dr. Martina Bachlechner**, Temporary Assistant Professor of Physics, was a keynote presenter at the International Symposium on Plasticity and its Current Applications in Kona, HI, on January 3-8, 2008. Her presentation was titled *Atomistic Simulations of Hypervelocity Impact on Interfaces*. Bachlechner has accepted an invitation to give another keynote presentation at the 2009 Plasticity Symposium.

• **Dr. Sue Rogers**, Temporary Assistant Professor of Biology, was invited to speak at the Society for In Vitro Biology’s annual meeting held June 14-18, 2008, in Tucson,

AZ. The World Congress on In Vitro Biology is an international congress that is held every four years. This year’s meeting was held in conjunction with the Japanese Tissue Culture Association. Rogers presented a session on In Vitro Ecology which is the use of transgenic methods for the production of improved native plants for use in habitat restoration and remediation. The title of her presentation was *Stable transformation of freshwater wetland monocots and its ecological implications*.

• **Todd Ensign**, Temporary Assistant Professor of Geoscience, and Dr. Deb Hemler, Professor of Science Education, served as primary instructors in a week long workshop held at the National Radio Astronomy Observatory in Green Bank, WV. The workshop was a collaborative effort between NRAO, NASA IV&V, WV Geologic and Economic Survey and FSU Geoscience Program providing teacher training in geology, radio astronomy and Global Learning Observations to Benefit the Environment (GLOBE).

Milestones/Achievements

• **Angela McKeen**, Visiting Assistant Professor of Geoscience, was recognized as “Best Presenter/Best Poster” at the WVU Research Symposium for her poster presentation, *Seeing Science Everywhere: Using the Arts to Teach Science in High Poverty Areas of Rural Appalachia*.

• **Dr. Deb Hemler**, Professor of Science Education, has been appointed by the West Virginia Superintendent of Schools to serve on the statewide STEM team.

• **Dr. Erica Harvey**, Professor of Chemistry, is serving as the FSU Director of Strategic Planning and Assessment.

• **Todd Ensign**, Temporary Assistant Professor of Geoscience, and Dr. Deb Hemler, Professor of Science Education, attended the International GLOBE conference in San Antonio, TX, July 30-August 3, 2008. Both gave a poster presentation in conjunction with Marshall University entitled: *Integrated Design for Geoscience Education (IDGE): Upward Bound*.

• **Dr. Mark Flood**, Professor of Biology, is the new President for the West Virginia Academy of Sciences.

• **Karen Grubb**, Academic Lab Manager, is now a grandmother. Daughter Beth gave birth to Jazzalynn on January 1, 2008.

• **Dr. Mahmood Hossain**, Assistant Professor of Computer Science, has been invited to work as the Chair of the “Nifty Ideas & Lightning Talks” session at Consortium for Computing Sciences in Colleges (CCSC) Eastern Regional Conference. The conference will be held in October 2008 at Hood College in Maryland. Hossain was also nominated for the ACM SIGKDD Doctoral Dissertation Award for his Ph.D. dissertation. This award recognizes excellent research by doctoral candidates in data mining. Over the summer of 2008, Hossain will be teaching a graduate level course in Bioinformatics and an undergrad course in Software Engineering at North South University in Bangladesh.

• **Gary Zickefoose**, Associate Professor of Civil Engineering Technology, returned to teaching at FSU after a long deployment in Afghanistan. He was involved in the rebuilding efforts of the country. In the past year, he worked with the 82nd Airborne Division, Bagram Army Airfield, Bagram, Afghanistan, as the LNO for the US Army Corps of Engineers. He was also a Resident Engineer,

U.S. Army Corps of Engineers in Kabul, Afghanistan, responsible for various projects worth approximately \$200 million.

• **Dr. Susan Goodwin**, Professor of Mathematics, is the 2008 College Mathematics Teacher of the Year. She has been recognized and awarded this distinction by the West Virginia Council of Teachers of Mathematics.

• **Larry Allen**, Electronics Engineering Technology, was tenured.

• **Tia Como**, Civil Engineering Technology, was promoted to Professor. Como was awarded the 2008 Faculty Advisor Certificate of Commendation from the ASCE Committee on Student Activities.

• **Dr. Pamela Huggins**, Biology, was tenured and promoted to Associate Professor.

• College Equipment Grants Program (CEGP) Committee of the Spectroscopy Society of Pittsburgh (SSP) awarded **Dr. Matt Scanlon**, Professor of Chemistry, his proposal for a FTIR System.

• **Kimberly Murphy**, Associate Professor of Occupational Safety, accepted the position of Chair of the Department of Technology.

Student News

Student Research Continued Over the Summer

During the summer of 2008, four students participated in the College of Science and Technology Summer Undergraduate Research Experience (SURE) as part of a NASA supported grant to promote critical thinking and problem solving skills in science, technology, engineering, and mathematics.

Each student was awarded a \$3,200 stipend to work with a faculty member on a research project of their choice. The NASA supported grant also provided funding to support travel expenses for student and faculty teams to present their research results at regional or national conferences.

This year the following students were selected to participate in the SURE program:

- **Adam Hamrick**, secondary education major with an emphasis in biology, worked with faculty advisor Dr. Sarah Dodson, Assistant Professor of Biology, on the project *Determination of the Effect of USF1 on Lipid Production in Endothelial Cells*. The

overall objective of this project was to better define the involvement of the gene transcription factor known as the Upstream Stimulating Factor 1 (USF1) with cellular events that are involved in the development and progression of familial combined hyperlipidemia (FCHL). This project examined the effect of decreasing USF1 on endothelial cells.

- **Chris S. Poletti**, computer science and biology double major, worked with faculty advisor Dr. Martina Bachlechner, Temporary Assistant Professor of Physics, on the project *Fractal Geometry of Amorphous Silicon after Delamination of Protective Silicon Nitride Layer*. The purpose of the project is to determine the geometry of the silicon surface using fractal dimensional analysis. Once the geometry was known, the relationship, if any, between the distorted silicon surface and the crystalline-amorphous boundary was determined using algorithms that compare the properties of both.

- **David Wray**, biology major, worked with

faculty advisor Dr. Mark Flood, Professor of Biology, on the project *Determining the Effect of Genotypes on Cellular Response to Homocysteine Exposure*. The purpose of the project will be to determine the genetic variability of cells from individual donors and to investigate if the genetic variability observed has an impact on endothelial cell response to homocysteine exposure. The research included the use of Pyrosequencing technology to assess genetic mutations.

- **John Johnson**, chemistry major, worked with faculty advisor Dr. Matthew Scanlon, Professor of Chemistry, on the project *Investigation of the Fluorescence Shifting Cause by Copper Doping of Cadmium Sulfide and Zinc Sulfide Nano-particles During Microwave Synthesis*. This project explored the synthesis of Cadmium Sulfide and Zinc Sulfide nanorods doped with copper and silver. The spectra of these particles was recorded in order to determine how they changed with doping.

College of Science and Technology Award Recipients

Science and Technology students were honored at FSU's annual Academic Awards Celebration on April 24, 2008.

Many of the awards presented at the event were made possible through gifts to the Fairmont State Foundation, Inc.

William C. Ruoff Outstanding Senior Chemistry Award, for superior achievement in chemistry: Jordan Moran and Stephanie Bobblett

Outstanding Senior in Biology, for superior achievement in biology: Alyssa Childers

Coleman-Cobb-Postawa Award, for superior achievement in undergraduate chemistry research: Stephanie Bobblett

Eleanor M. Ford Outstanding Senior Award, for extraordinary work in science and mathematics: Amber Degroff

Eleanor M. Ford Outstanding Junior Scholarship, for extraordinary work in science and mathematics: Renee Larue

Outstanding Freshman in Chemistry, for superior achievement in undergraduate chemistry: Albert Pilkington

Coleman/Swiger Endowed Chemistry Scholarship, for superior achievement in undergraduate research: Michelle Plymale and Greg Donohoe

Vincent and Catherine Sansalone Scholarship, for superior achievement in Science and Technology: Megan Smith

Ernest Frye Outstanding Student in Computer Science Award, for superior achievement in Computer Science: Chad Holbrook

Robert L. Carroll Scholarship, for superior achievement in math: Kristen Rausch

Robert L. Carroll Scholarship, for superior achievement in physics: William Wiseman

James A. LaRue Mathematics Award, for superior achievement in mathematics: Brittany Tobin

Joyce H. Coleman Memorial Scholarship, for achievement in mathematic education: Kristen Rausch

Aviation Technology, for superior achievement in aviation technology: Gerod Green

Architecture, for superior achievement in architecture: Joshua Frick

Civil Engineering Technology, for superior achievement in civil engineering technology: Timothy Summerfield

Electronics Engineering Technology, for superior achievement in electronics engineering technology: Jhaye Jones

Graphics Technology, for superior achievement in graphics technology: Amy Napierkowski

Mechanical Engineering Technology, for superior achievement in mechanical engineering technology: Jessica Titus

Occupational Safety, for superior achievement in occupational safety: Timothy Huffman

Consol Civil Engineering Technology Scholarship, for superior achievement in science and technology: Konstantinos Fintrilis

Walter F. Phillips Scholarship, for superior achievement in science and technology: Christopher Warnick

Second Annual Celebration of Student Scholarship

FSU student's hard work and exceptional research skills were showcased at the second annual Celebration of Student Scholarship on April 16, 2008. The event highlights the research activities, artistic expression and creative efforts of students and recognizes the contributions of faculty mentors.

The following Science and Technology students participated in the event:

Andrew Lowther, *Design and Fabrication of a Mini-Baja Racecar*

Shane Poletti, *Determining the Onset of Amorphization of Crystalline Silicone due to Hypervelocity Impact*

Stephanie Zorio, *Determining the Role of pH on Benzo[a]pyrene Toxicity in Frogs*

Amanda Hite, *Determination of the Role of Detoxification Enzymes in Frog Embryonic Survival and Development*

Victoria Kilkenny, *Design and Construction of Automated Spring Fatigue Tester*

Chris Gross, *Induction Welding of a Replacement Afterburner Diffuser Tube*

Jared Williams, Redsign of Greer Limestone's Kiln

Justin Cullen and Kiley Wilfong, *Small Changes for a Large Impact*

Michael Ewing, *Mechanical Engineering Technology Laboratories' Layout*

Earl Ambrozak and Larisa Lynch, *Electronic Medical Records: Good or Bad?*

Zachary Brewer, *Examination of In Vitro Homocysteine Exposure to Stromal Cells*

Adam Hamrick, *Defining the Role of Actin Filament-associated Protein AFAP-110 in Glioblastoma Invasiveness*

Kylie Jones, Larisa Lynch, and Christopher Warnick, *Waste Stream Cost Analysis Research*

Adrienne Riggi, *Determination of Homocysteine Levels in Endothelial Cell Cultures by HPLC*

David Wray, *Determining the Effect of Gene Mutations on Plasma Homocysteine Levels*

The following Science and Technology faculty served as mentors for student research or chaired event sessions: Dr. Martina Bachlechner, Dr. Andreas Baur, Dr. Sarah Dodson, Dr. Mark Flood, Phillip Freeman, Dr. Erica Harvey, Dr. Steven Roof, Merle Thomas Jr., Dr. Don Trisel, and Dr. Pamela Huggins.

The event was sponsored by the Office of Research & Graduate Studies, Undergraduate Research Program, Honors Program and Office of Academic Affairs.

DEPARTMENT OF BIOLOGY, CHEMISTRY AND GEOSCIENCE

GLOBE Takes Geoscience Faculty to Costa Rica, Nigeria



Dr. Debra Hemler, Professor of Geoscience, Tiffany Litton, FSU Adjunct Faculty member and Todd Ensign, Temporary Assistant Professor of Geoscience stand atop a granite mountain in Ondo State, Nigeria.

Dr. Debra Hemler, Professor of Geoscience, Todd Ensign, Temporary Assistant Professor of Geoscience, and Tiffany Litton, FSU adjunct faculty member, continued their work with Global Learning and Observations to Benefit the Environment (GLOBE) in Ni-

geria and Costa Rica.

GLOBE is an international initiative that allows students in over a hundred countries and at all grade levels to engage in authentic scientific research.

The third GLOBE workshop in Nigeria took place on December 17-20, 2007 at the Sunshine State e-Technology Center in Akure, Ondo State. This training is the second in a series which will certify at least two GLOBE teachers at each of Ondo State's 250 secondary schools

and provide the school with a complete set of equipment to measure GPS, atmosphere, soils, hydrology, and land cover protocols. Hemler, Ensign and Litton helped guide 35 new teachers through hands-on learning activities and the use of their new GLOBE

equipment.

While in Costa Rica, Hemler and Ensign served as workshop facilitators, introducing GLOBE's Atmosphere, Hydrology, and GIS protocols to 40 Costa Rican educators. The GLOBE training was held near Cartago, Costa Rica, on April 16-19, 2008 and was sponsored locally by the Omar Dengo Foundation (ODF) which coordinates GLOBE in Costa Rica and the Integrated Design for Geoscience Education (IDGE) program funded by a grant from the National Science Foundation.

The workshops provided students with training on and access to scientific probe-ware and Geographic Information System (GIS) to allow them to increase the quantity and quality of their measurements and provide a means of comparing and analyzing geo-spatial data. The use of this equipment will allow Coasta Rican and West Virginian students to share information and collaborate on ecological studies.

The IDGE program is run by Marshall University in partnership with Fairmont State University and the NASA IV & V Facility Educator Resource Center in West Virginia.

Annual Undergraduate Research Symposium in the Chemical and Biological Sciences

Fairmont State University senior biology majors Amanda Reed and Alyssa Childers presented research projects during the 10th annual Undergraduate Research Symposium in the Chemical and Biological Sciences at the University of Maryland, Baltimore County, which is an honors university in the sciences.

Both Reed, who is from Bridgeport, and Childers, who is from Johnstown, Ohio, have continued their research on cardiovascular disease. Both are recipients of an FSU College of Science and Technology/NASA Student Fellowship. Reed, who graduated in December 2007, is planning to continue her education by enrolling in a physical therapy program.

"This research experience has given me great opportunities to interact with many

professionals in science," Reed said. "I have really had a lot fun."

Childers, who graduated in May 2008, plans to continue her education by enrolling in optometry school.

"Research has been a really great experience because it has allowed me to utilize the tools that I have acquired while at FSU and apply them to real life situations," Childers said.

During the symposium, Childers placed second in the poster session in the category of Biochemistry and Molecular Biology. The

poster, titled *Analysis of Apoptosis in Human Umbilical Vein Cells Exposed to Homocysteine*, was the work of Childers and FSU students Michelle Lindsey and Bonnie Freeman under the direction of Professor of Biology Dr. Mark Flood and Assistant Professor of Biology Dr. Sarah Dodson.

Reed presented a poster entitled, *Several Single Nucleotide Polymorphisms are Correlated with Plasma Homocysteine Levels*. The poster represented her work, along with that of Lindsey and Freeman under the direction of Flood and Dodson.

Funding for the student stipends came from the FSU NASA Langley grant. Research supplies were provided with a grant made possible by the West Virginia IDeA network for Biomedical Research Excellence.

AutoCAD Summer 2008 Training: Three Dimensional Modeling and Construction

Two days of Auto Computer-Aided Design (AutoCAD) training were scheduled for this summer on August 14-15, 2008, for STEM faculty members. The overall goal of the training was to better understand three dimensional modeling and construction.

During the two-day training, participants explored three dimensional concepts and application software.

The trainings helped to make faculty aware of the availability of complimentary

surveying applications that work with their existing site license from AutoDesk. A program's third session will be offered in 2009 and will allow time for more in-depth exploration of Civil applications.

The third summer of the program in 2009 will explore the Civil applications in great depth to compliment the study of GPS and GIS. The AutoCAD workshops are a joint initiative between Fairmont State University and Pierpont Community & Technical College.

Arch Student Installments

Philip Freeman and design students from the architecture program created several geometric installations on campus during the fall 2007 semester. The projects were temporary, biodegradable, and constructed of all natural materials.

The projects were spread across campus, including the traffic circle at the Bryant Street Entrance, Hardway Hall monumental stairs and the Feaster Center.

Mine Safety Class Project

Two senior engineering technology students received media attention for their class project aimed at enhancing mine safety.

Two students used their project to explore mine safety with technology that tracks miners, providing important information that may be helpful in a mining accident, such

as names and locations of trapped miners. Their project was highlighted on WBOY-TV in December 2007.

Other students presented on a variety of ideas including voice control systems, robots and high speed photography, all of which had to include an electronic component.



DEPARTMENT OF COMPUTER SCIENCE, MATH AND PHYSICS

RESA VII Regional Math Field Day Competition

By Dennine LaRue

The Mathematics Department of Fairmont State University has been instrumental in the development of the Region VII Math Field Day program and test preparation for the competition. During the past 33 years, various members of the department have donated their time and talents to prepare math tests for the grades 10-12 competition as well as to help coordinate the event.

In the past two years, Randy Baker, Dr. Susan Goodwin, Dr. Jeanne Harris and Dennine LaRue contributed questions to a test bank. Dr. Jeanne Harris verified answers for the five tests and prepared solution keys.

For the first 15 years of the academic competition, members of the FSU Math Department prepared all five tests. The Math Department also hosted the event on the Fairmont State campus for 26 years. Members of the department included James O. Dunlevy, Dr. Libby Frye, Dr. Jeanne Harris, Dr. James A. LaRue, and William Schneider.

The Math Field Day program then began rotating with other colleges and universities to prepare various parts of the competition. In addition to the above five faculty mem-

bers, Dr. Joseph Riesen also prepared tests for several years.

Dennine LaRue has served as regional director for five years, regional site coordinator for 20 years, a member of the West Virginia State Math Field Day Organization for 22 years, and WVSMFD secretary for 17 years.

Region VII consists of 12 counties in North Central West Virginia. They are Barbour, Doddridge, Gilmer, Harrison, Lewis, Marion, Monongalia, Preston, Randolph, Taylor, Tucker, and Upshur. Currently, the Regional Education Service Agency located in Clarksburg is the local sponsor of the regional event.

The Region VII Math Field Day competition is one in a series of events leading to a state wide competition. The students first compete at the school level, county, and regional before attending the West Virginia State Math Field Day. The top 15 students in grades 10-12 comprise the West Virginia State Math Team and participate in the American Regions Math League (ARML) competition at Penn State University in May 2008.

The first math field day was organized in 1972 by Jerry L. Jackson in Braxton County to show that math is an exciting and fun subject to study. The first West Virginia State Math Field Day was held in 1975 at Potomac State College and the constitution for the WV State Math Field Day organization became effective September 1, 1977. This organization is unique to West Virginia since the structure of the program was created by West Virginia teachers. The organization was granted tax exempt status in 1977 and the program is still independently coordinated by teachers.

Student Programming Team Makes Debut

Two Computer Science students, along with Don Tobin, Assistant Professor of Computer Science, attended the 23rd Annual Consortium for Computing Sciences in Colleges Eastern Region Conference this year held at St. Joseph's College in Patchogue, NY on October 12- 13, 2007.

Besides attending conference sessions on various computing research being done at universities across the country, Robert Ball and John Richards also participated in the Undergraduate Programming Competition with 23 other teams from across the Eastern Region. This marked the first time that an FSU student programming team has gone on to a competition.

"Even though they were competing against teams that had three members, they still managed to tie for 12th place, and brought back many lessons for students going to next year's programming competitions," Tobin said.

Students, Faculty Attend Mathematics and Statistics Conference

Students and faculty from the mathematics program attended the 35th Annual Mathematics and Statistics Conference and the concurrent 34th Annual Mi Epsilon Student Conference at Miami University of Ohio on September 28-29, 2007.

The six students and four faculty members attended paper presentations and a keynote address from speaker Bruce Berndt, University of Illinois at Urbana-Champaign, who spoke about the life and the mathematics of the famous mathematician Ramanujan.

The theme of the conference was "Number Theory" and was sponsored by the Miami University Mathematics and Statistics Department.

WV Higher Ed Math Symposium

By Susan Goodwin

Fairmont State University hosted the WV Higher Ed Math Symposium on April 4-5, 2008, at the Gaston Caperton Center in Clarksburg. This symposium was held in conjunction with the conference for the West Virginia Mathematical Association of Two Year Colleges.

Forty college math professors from colleges and universities around the state attended. The theme for the conference was "Helping Math Students Make Transitions." Dr. William Velez of the University of Arizona, the keynote speaker, addressed the issue of recruiting mathematics majors.

Mary Beth Angeline, Jean Bolyard, and Linda King of Pierpont Community & Technical College presented *Making it All Add Up in a Learning Community*. Dr. Susan Goodwin, Professor of Mathematics, and Dennine LaRue, Temporary Assistant Professor of Mathematics, presented a talk on *Transitions to Proof*. Jim Dunlevy, Associate Professor of Mathematics and Dennine LaRue presented *Topics in College Algebra*. FSU math students Renee LaRue, Heather Richards, Lisa Stevens, and Todd Tichenor served as the panel for "Transitions: A Student Perspective."

The conference is sponsored by the West Virginia Higher Education Policy Commission. Dr. Susan Goodwin served as conference chair.

Spring 2008 Dean's List

The faculty and staff of the College of Science and Technology are proud of the accomplishments of the students listed below. Each has been named to the Dean's List for the Spring 2008 semester. In order to be selected for this honor, students must be enrolled for at least 12 hours and receive a grade point average of 3.4 or higher.

Lundy Bailey	Susan Fletcher	Howard Pridemore
Andrea Baisden	Matthew Foltz	Matthew Raines
Joseph Benincosa	Kevin Funk	Kristen Rausch
Kermit Bennett	Christopher Gallaway	Jessica Ray
Marsha Benson	Joshua Goddard	Jonathan Reitz
Lisa Binz	Matthew Good	Samantha Richards
Misty Blavos	Andrew Goodrich	Justin Ridgeway
Daniel Blue	April Grandinette	Matthew Riffle
Houari Bouamoud	Gerod Green	Philip Robinson
Victor Bradford	Tanya Griffith	Mariah Roth
Joshua Bradley	Kenneth Hacker	Adam Rouse
Tobias Brown	Erin Hadox	Matthew Ruckle
Ashley Burdette	Andrew Hady	Aaron Saas
Briana Campbell	Carlton Handley	Ryan San Julian
Derrick Campbell	Christopher Hannah	Christopher Sedlacek
Zachary Campbell	Beau Harman	Serena Setcavage
Evan Chapman	Robert Hefner	Kylie Shaffer
Kaylan Chapman	Adam Helmick	Steven Shannon
Alyssa Childers	Amanda Hite	Malorie Shriver
Joshua Childers	Chad Holbrook	Steven Simmons
Anthony Clark	Jared Hovatter	Brandi Smith
Ryan Clark	Jared Jenkins	Jennifer Smith
Robert Conroy	Bradley Johnson	Alyssa Snyder
Kelley Corcoglioniti	Ryan Jones	Lisa Stevens
Jordan Crain	Michael Karolchik	Landon Stuart
Colby Craven	Alexis Keller	Zackary Summerfield
Jennifer Cronin	Victoria Kilkenny	Evan Swihart
Robert Cruickshank	Douglas Kish	Carey Swisher
Justin Cullen	Zachary Kuiken	Adam Teets
Jennings Cunningham	Matthew Ladeaux	Garrett Teets
Joshua Dace	John Lafferre	Byron Templeton
Aaron Daniels	Ashleigh Landis	Todd Tichenor
David Davis	Jordan Lantz	Jessica Titus
Amber Degroff	Andrew Lau	William Ware
Kristen Desantis	Randal Lemons	Christopher Warnick
Derek Deussenberry	Maria Malone	Danny Watson
Thomas Devine	Jason Martin	Steven Whitmore
Emily Dimitroff	Branden Mayle	Kiley Wilfong
Gregory Donohoe	Molly McCormick	Ian Wilhelm
Vanessa Downey	Matthew McMillian	Jared Williams
Kyle Dunbar	Fabien Mevs	Michael Wilson
Jared Duncan	Gavin Miller	Robert Wilson
Michael Elder	Ashley Moore	
John Elko	Jordan Moran	
Michael Ewing	Amy Napierkowski	
Zachary Fay	Dustin Nash	
Bradley Filer	Brad Phillips	
Konstantinos Fintrilis	John Pierson	
Arthur Fitzsimmons	Albert Pilkington	
Brian Fitzwater	Michelle Plymale	



College of Science and Technology Develop STEM Innovation Center

The College of Science and Technology has partnered with the West Virginia High Technology Consortium Foundation to develop a Science, Technology, Engineering, and Mathematics (STEM) Innovation Center. The Center is funded by the National Aeronautics and Space Administration (NASA) for the next three years for the sum of \$813,489.00. The STEM Innovation Center will strengthen the quality of STEM education and research, and to increase the number of students graduating in STEM disciplines to meet local and national workforce needs. Specific goals of the STEM Innovation Center include:

1. Fostering and creating partnerships to support future science, technology, engineering, and mathematics programming via the NASA Educator Resource Center Network, NASA Missions, and other non-profit agencies.
2. Improving the teaching and learning processes of high school students in science, technology, engineering, and/or mathematics education.
3. Developing a series of educational modules in selected science and engineering disciplines for future use in West Virginia public schools, and in the Teacher Education Program at Fairmont State University utilizing NASA Missions knowledge and data.
4. Providing professional development opportunities to encourage and promote learning in science, technology, engineering, and mathematics.
5. Offering enrichment activities for high school students via summer camps in science and engineering disciplines and their related fields that engage students in the exploration of NASA Missions as a gateway to enhancing an appreciation of the role of science and technology in their everyday lives.
6. Creating opportunities for students in science and engineering areas to design and conduct action research.
7. Implementing a STEM Research Committee to identify competencies and teaching modules for specific high school courses to fill the gaps for students planning to enroll in post-secondary STEM majors.
8. Disseminating research data on the learning modules, teaching techniques, and best practices implemented.

Dr. Anthony F. Gilberti, the Principal Investigator for this grant, noted that this is

an outstanding opportunity for faculty and students in the College. "The Center will provide us with unique abilities to influence the teaching and learning in STEM disciplines within our region. Our hope is to positively contribute to the success of students entering fields of study that can help solve many of the problems facing our state and nation. The overall mission of the Center is to improve the teaching/learning process in STEM subjects and to encourage future students in science and engineering disciplines via student enrichment, faculty development, educational research, and the preparation of new teachers in the science, engineering, and technology areas."

One of the unique features of the grant is to create a Young Scholars Program. Each summer the STEM Innovation Center would conduct from one to three different residential summer camps for high school students interested in STEM disciplines. Each residential summer camp would meet for a total of six days and would be structured to allow students, faculty, and student mentors to directly experience action based activities and research centered on NASA Missions. The NASA Missions on Earth, Human Spaceflight, the Solar System, and the Universe and Beyond offer exceptional opportunities for students to participate in STEM career exploration, scientific and technological inquiry, and problem/project based learning. Applications for participation in the Young Scholars Program will be made available to faculty and regional high school students early this spring.

Three Faculty Demonstrate Their Acting Skills

Dr. Matthew Scanlon (Professor of Chemistry), Dr. Donald E. Trisel (Professor of Biology), and Dr. Joseph Riesen (Professor of Mathematics) demonstrated their fine acting ability at Prickett's Fort State Park Amphitheater in the production of *1776* on July 4-6th and 9-13th. The production was presented by the Town and Gown Theatre of the School of Fine Arts at Fairmont State University, and provided an entertaining review of our nation's independence. Playing to a full house, our faculty demonstrated that they could act outside of the classroom in a stately fashion!

New Curricular Offerings Being Planned

Faculty in the College of Science and Technology are currently working on the development or revision of several programs of study. The Biology, Chemistry, and Geoscience Department is developing an Intent to Plan document to explore the opportunities for developing an Environmental Science degree. This degree will likely provide several different tracks to allow students to specialize in areas of ecology or mitigation of environmental pollution. A major revision is currently being proposed for the Computer Science and Computer Security programs in the Computer Science, Mathematics, and Physics Department. This revision updates current course offerings and will allow the faculty to seek accreditation via the Accreditation Board for Engineering and Technology. The Technology Department has redesigned its current Graphics Technology-Electronic Publishing and Imaging degree to a Graphics Technology degree program. The proposed new degree will contain several new courses including Animation, Motion Graphics, Multi Media Authoring, Typography, and Design.

Engineering and Science Challenge

The College of Science and Technology held its first Engineering and Science Challenge for regional high schools on October 31st. The goal in sponsoring this event was to increase interest and enthusiasm for engineering and science for high school students. The event utilized a series of structured and unstructured design challenges that had to be solved by students working in teams. The problems required the building or construction of various components or active investigation using the scientific method. Design challenges were developed in the areas of biology, chemistry, engineering, technology, and mathematics, and each event was created to foster critical thinking and teamwork. Approximately 100 students attended the Engineering and Science Challenge. At the conclusion of the event, one school was selected as the overall winner of the day. This trophy went to North Marion High School, from Marion County. The high school teachers and students were exceptionally pleased with the event and noted that they wanted even more of these events in the future. Plans are already underway to create an even bigger event next year.

Alumni Spotlight

FRANK MULDOON

Degree/Major: Bachelor of Science in Mathematics and Aviation Technology

Update: Muldoon is a graduate student at Clemson University in Clemson, SC, pursuing a Masters and Ph.D. in Mathematics. He plans to graduate with his master's degree in the spring of 2009 and Ph.D. in the spring of 2012.

Muldoon credits hard work and professors for guiding him through the learning process of preparing for graduate school.

"Even though FSU is a small school, all of my professors, especially my math professors, took time to meet with me one-on-one and answer questions that I had. Normally, they would never just give me the answer, but point me in the direction I should go. I still had to do the work and complete the problem, so I learned how to work independently and think more about complex problems. This is required when pursuing any higher level degree above the undergraduate level."

As for the future, Muldoon knows he has many opportunities ahead.

"With a Ph.D in math, I could teach math at the college or university level, work for the government or in industry. I do not know what career will fit me best, but I have several options available and plenty of time to decide."

Muldoon graduated from Fairmont State University in the spring of 2007. He was the recipient of the Eleanor M. Ford Outstanding Senior Award and the James A. LaRue Mathematics Award.

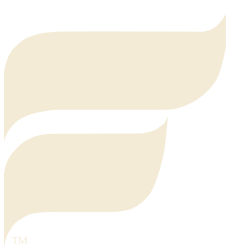
MICHAEL WARE

Degrees/Majors: Bachelor of Science in Computer Science and Computer Security

Update: Ware graduated from James Madison University with a Master of Science degree in Secure Software Engineering with a 4.0 GPA. The Secure Software Engineering curriculum combines courses in computer science, software engineering and information security to provide practical understanding of building secure systems.

Ware's thesis was titled "Writing Secure Code: A Taxonomy of Heuristics and an Evaluation of Static Analysis Tools." Ware attended James Madison University on a full Graduate Assistantship, after participating in several undergraduate research opportunities while at Fairmont State University with Assistant Professor of Computer Science Don Tobin.

Ware graduated from Fairmont State University in 2006.



Adjunct Corner

JASON MILLER

I received my B.S. in Architectural Engineering Technology from FSU and a Masters of Architecture from Virginia Tech. I am currently employed by OMNI Associates of Fairmont and I am setting now for my professional license as an architect. I currently live in Fairmont with my wife Susie and three daughters Lindsay, Maddie and Lilly.

This last semester the Design Six studio designed a hypothetical welcome center for the new Fairmont gateway connector. Their challenge was to design a center that would serve as a place to welcome visitors to Fairmont as well as travelers that stop briefly for other reasons. The making of place such as these students did is difficult when adding the programmatic functions and construction techniques while being site specific. The end result was exhibited at The Monongalia Arts Center in Morgantown and was well received, with an invitation for sequential exhibits.

I hope to do these types of displays with the Architecture department in the future as well.

It is good for the students to share their work outside the boundaries of the campus and into the communities that surround us. It is important for the students to realize that their ideas, even when confined to the studio, have real applications outside of the classroom.

Jason Miller is an adjunct instructor, most recently teaching the senior design studio along with Greg Eddy and the 3D modeling courses for the last couple of years.



Jason Miller, Intern-Architect with The Omni Associates - Architects, Inc., helped FSU architecture students put on an exhibit at the Monongalia Arts Center.

Stay Connected!

Alumni are critically important to the success of past, present and future FSU students. The College of Science and Technology values interactive relationships with our alumni and invite you to stay involved.

Visit our Science and Technology Alumni page, <http://www.fairmontstate.edu/academics/collegeofscitech/scitechalumni.asp> to stay up-to-date and remain in touch with the alumni forum,

share your successes in an alumni spotlight and offer your expertise and guidance through the Mentor Link program.

If you are interested in acting as a mentor, serving as a guest speaker or volunteering at one of many College and Science Technology sponsored events, please contact us at (304) 367-4642 or scitech@fairmontstate.edu.

Outreach Calendar

(more detail on the web at www.fairmontstate.edu/academics/CollegeofSciTech)

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:

America Counts math tutoring

Students in 5th – 8th grades who are experiencing math difficulties

Contact: For program information, dates and times, call (304) 367-4579

Campus Visitation Day

All prospective students and families are invited. Tours of Science and Technology facilities provided upon request.

Contact: "Visiting Fairmont State" link at www.fairmontstate.edu

FEBRUARY 21, 2009

North Central West Virginia Regional Science, Energy and Engineering Fair

Students in grades 6 - 12

Contact: College of Science and Technology (304) 367-4642 or scitech@fairmontstate.edu

Visit our science fair page at <http://www.fairmontstate.edu/academics/ScienceFair/default.asp> for updated information

MARCH 21, 2009

West Virginia State Science, Energy and Engineering Fair

Contact: College of Science and Technology (304) 367-4642 or scitech@fairmontstate.edu

Visit our science fair page at <http://www.fairmontstate.edu/academics/ScienceFair/default.asp> for updated information

Science After School

K – 6 students

Contact Deb Hemler at (304) 367-4393
dehemler@fairmontstate.edu

Visit our online calendar

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

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