The NASA Independent Verification and Validation (IV&V) Facility Student Outreach Program was established in April 2004. With the extensive growth of the Educator Resource Center, and more frequent requests for student support, it was necessary to expand the existing NASA IV&V Educational Outreach activities. To meet the educational community’s needs, a Student Outreach Grant was awarded to FSU. Through this grant students at all levels are served, from pre-K through Lifelong Learners, a group whose members are over the age of 55. Additionally, participants, both students and leaders, from community groups such as the Boy Scouts, Girl Scouts, Young Marines and 4-H, are given support by being provided with speakers, on-site presentations and mentor programs. The partnership with FSU has proven to be an excellent way to reach into the community and offer the types of support needed.

The NASA Student Outreach program works closely with other agencies and projects to reach the goal of inspiring and motivating students to pursue careers in science, technology, engineering and mathematics. In collaboration with the FS GEAR UP grant partnership, a “Science Spectacular” was held on Feb. 8 at the Feaster Center. This engaging presentation was given by Darryl Baynes from the Minority Aviation Education Association (MAEA) headquartered in Wheeling, W.Va. All GEAR UP schools were invited to attend this 2 1/2 hour adventure resulting in a capacity crowd of about 550 middle school students, teachers and chaperones.

Baynes conducted experiments that focused on the triangle of fire and the properties of gases. He used a variety of experiments to demonstrate that gases have mass, take up space and can be explosive. Using pure helium, hydrogen, oxygen and propane gases, he demonstrated the effects produced when gases are burned, mixed with other gases and added to substances such as soft drinks. Other concepts explored were pH, sublimation, evaporation and temperature.

Throughout the event, Baynes reminded students that the path their life takes is up to them, and that if they can dream it, they can do it. He also shared information about African-American inventors, scientists, doctors and others of influence. The grand finale was a large explosion produced when a balloon filled with a mixture of gases was ignited. The students shared an experience they won’t soon forget.

In addition to exciting students about science and math, the “Science Spectacular” was offered as a way to increase career awareness. A major focus of the Student Outreach Program at the NASA IV&V Facility is the High School Apprenticeship Programs that are offered annually. These summer internships give students an opportunity to work one-on-one with a NASA mentor and get real life experience. Students that the path their life takes is up to them, and that if they can dream it, they can do it. The following science activities were explored this year:
- “Microscopes” and “Combustion”
- “Color”
- “Hot and Cold”
- “The Effect of Sugar Content on Ice Cream”
- “Sound and Sound Waves”

FSU students who assisted in these activities included Dana Calica, Megan Damm, Melinda Huff, Amy Jaggie and Amy Jeffrey.

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Mechanical Engineering Technology Students Have Good Showing in Mini Baja Competition

A team of FSU mechanical engineering technology students put their off-road vehicle prototype to the test as part of the 30th annual Mini Baja East Competition at the Rochester Institute of Technology in Rochester, N.Y., on May 5-7.

The students involved in the project were enrolled in a capstone course in mechanical engineering technology. “Their job was to start with nothing and build a race car in two semesters,” said Merle Thomas, Assistant Professor of Mechanical Engineering and Program Coordinator. “Our team’s vehicle was a beautiful piece of work.”

FSU’s team members are Josiah Wallace, Bronson McNemar, Chris Hall, Jason Bell, C.J. Lewis, Bryn McNemar, Chris Goodwin, Derek Payne, Dan Morris, Christina Soles, Dipan Ghimire and Michael Kerekes. FSU’s team took home a trophy for Overall Best Rookie Team. FSU was among 66 colleges and universities from across North America that participated in the three-day competition featuring races at Hogback Mountain Track in Palmyra, N.Y. Competing the different competitions in acceleration, braking, hill climbing, top speed and suspension was a four-hour endurance race. “Our successes on the track gave us the chance to show everyone just how good we are here at Fairmont State,” said Josiah Wallace, lead race-car designer and a graduating senior.

Mini Baja, sponsored by the Society of Automotive Engineers, consists of three regional competitions that simulate real-world engineering design projects and their related challenges. Engineering students are tasked to design and build an off-road vehicle that will survive the severe punishment of rough terrain and water. “Our goal was to build a vehicle that could be mass produced,” said Team Leader Bronson McNemar, a graduating senior and president of FSU’s Society of Automotive Engineers.

The purpose of the competition is to provide students with a challenging project that involves the planning and manufacturing tasks typically associated with introducing a new product to the consumer industrial market. Teams compete to have their design for a dune-buggy vehicle accepted for manufacture by a fictitious firm. Students must function as a team to design, build, test, promote, and race a vehicle within the limits of the rules, and to generate financial support for their project while managing their educational priorities. All vehicles are powered by a 10-horsepower Briggs & Stratton model 20 engine donated by Briggs & Stratton Corp. SAE provides general guidelines for teams such as maintaining a 1-inch 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. The FSU team put significant effort into their suspension system. Each wheel was independently suspended, while the rear wheels were under power and supported by double shock absorbers. This made the vehicle so stable that it was never in danger of tipping over on the rugged terrain. The FSU car had a top speed of more than 40 mph. “It sounds slow, but it wasn’t when I hit a tree,” McNemar said.

During the fall semester, the students, all juniors and seniors, worked in the Auto CAD lab with Dr. Jerry Buczak, Chair of the FSC&TC School of Business, Aviation and Technology, to design and build the Mini Baja competition. During the fall semester, the students, all juniors and seniors, worked in the Auto CAD lab with Dr. Jerry Buczak, Chair of the FSC&TC School of Business, Aviation and Technology, to design and build the Mini Baja competition. During the fall semester, the students, all juniors and seniors, worked in the Auto CAD lab with Dr. Jerry Buczak, Chair of the FSC&TC School of Business, Aviation and Technology, to design and build the Mini Baja competition. During the fall semester, the students, all juniors and seniors, worked in the Auto CAD lab with Dr. Jerry Buczak, Chair of the FSC&TC School of Business, Aviation and Technology, to design and build the Mini Baja competition. During the fall semester, the students, all juniors and seniors, worked in the Auto CAD lab with Dr. Jerry Buczak, Chair of the FSC&TC School of Business, Aviation and Technology, to design and build the Mini Baja competition.
The ASCE Student Club ROCKS the Boat

This year, the American Society of Civil Engineers (ASCE) Student Club at Fairmont State University has taken home the gold in the Regional Concrete Canoe Competition at Clemson University in June 2025. This was the first time that the club competed in the regional competition, and they were able to rank in the top four categories overall.

The team consisted of four students, who were able to work closely together and develop a cohesive design. They started by brainstorming ideas and discussing their goals for the project. They then began to design their canoe, taking into account factors such as strength, weight, and aerodynamics.

Next, the team began to build the canoe. They worked on a four-day trip to use a radio telescope to investigate a supernova remnant, the galactic plane or hydrogen spectral lines. They will learn how to use a 40-foot radio telescope, collect and analyze data and ultimately present their findings during a lunch seminar to a group of experts.

The team then worked on the power system design. They were able to create a lightweight and durable design that could power all of the electronic components on the canoe.

Finally, the team worked on the finishing touches. They added details such as decals, graphics, and other elements that make their canoe unique.

In conclusion, the ASCE Student Club is proud of their achievements and the work they have put into this project. They look forward to continuing to work on future projects and hope to participate in more competitions in the future.
Grant to help build medical research programs

FSU is part of a $16 million grant from the National Institutes of Health to help colleges and universities in West Virginia develop biomedical research programs.

The principal investigator of the grant is Dr. Mark Flood of the Department of Computer Science, Math and Physics. Dr. Flood's project involves working with several other colleges and universities to strengthen the biomedical undergraduate programs at other WV college and universities and form collaborative and research links to Marshall and WVU. The program is called the West Virginia IDeA Network of Biomedical Research Excellence (WV-INBRE). Only four institutions in addition to Marshall and WVU were selected to participate in this research initiative.

Dr. Mark Flood and Dr. Albert Magro are the FSU faculty involved in the research aspects of the grant. Flood's project involves assessing the genetic risk of West Virginia students for developing cardiovascular disease, and Magro's project involves looking at the mechanism of how certain cancers are resistant to drug therapies designed to kill cancer cells. A third faculty member, Dr. Sarah Dodson was just hired with grant support to work on this research team.

FSU will receive about $1.6 million, which includes $400,000 for the first year of the grant and about $300,000 in years two through five of the grant. There will be opportunities for FSU students to be involved in summer internships and to be faculty to be involved in workshops to help build the educational capabilities in molecular biology.

The grant is an extension of a three-year grant that gave FSU about $500,000 to support undergraduate student teaching and research. The money will be used to purchase new equipment, faculty and student stipends, and supplies necessary to carry out the research.

Dr. Sarah Meads Dodson

Sarah grew-up in Glenville, W.Va., digging in the dirt and investigating the world around her. She was always a curious kid, but her father, a college professor father and a high school English teacher mother, was also instilled with the importance of education. In 1985, she completed a B.S. degree in Biology with a minor in Chemistry from Shepherd College in Shepherdstown, W.Va. After working for a year in Kearneysville, W.Va., at the USDA Agricultural Research Station and doing an internship at the Leesburg Fish Research Station, VA, she wanted to continue her education in graduate school. She earned her M.S. degree in Medical Microbiology from The University of Georgia in Athens, Ga. She returned home to West Virginia, was accepted to the graduate program at West Virginia University and married her husband, Jeffrey. Sarah received her Ph.D. in Microbiology and Immunology from WVU in 2004.

So, where is she now? You can currently find her in Hunt Hault Hall where she is a new Assistant Professor. She is thrilled to join the growing number of faculty in the Biology Department who are interested in biomedical research. Sarah values the importance of the scientific research process in the undergraduate experience and would not have considered graduate school at all if she had not experienced lab research firsthand.

She, along with her husband and two kids/golden retrievers, Georgia and Rudy, are excited about being back in the area. Even more, she is excited about the opportunity to teach and work alongside Dr. Mark Flood in their new lab and to provide new intellectual challenges to FSU students. Sarah has had many great mentors throughout her education and wants to provide the same support and encouragement.

Dr. Aubrey L. Miller

Dr. Aubrey Miller is the newest full-time faculty member in the Department of Computer Science holding the rank of Assistant Professor in Mechanical Engineering Technology.

His career in engineering began in 1978 upon completion of his Bachelor of Science degree in Chemical Engineering from the University of Michigan. He was first employed in the chemical industry as a process engineer for 3.5 years and later as a project engineer installing capital projects that ranged in value from $10,000 to $500,000 for another 3.5 years. In 1985, he entered graduate school and received his M.S. degree in Chemical Engineering in 1987 and his Ph.D. in Chemical Engineering in 1991. Both graduate degrees were earned at the Illinois Institute of Technology in Chicago, Ill.

His teaching career began in 1992 when he served as a Visiting Assistant Professor in the Chemical Engineering Department at his alma mater. He then was an Assistant Professor in the Chemical Engineering Department at West Virginia University in Morgantown. In 2002, he began work as a Government Contractor at the National Energy Technology Laboratory (NETL) in Morgantown, where he has been working on research problems in the area of two-phase flow. This work consists of experimental measurements and mathematical modeling using computational fluid dynamics (CFD).

He has published refereed journal articles on the subject matter and plans to continue his research. He intends to establish collaborative projects with FSU faculty and students.
Don Tobin, Assistant Professor of Computer Science (Computer Security), and Michael Ware, a computer science/ mathematics major, have won a paper presented on their research at the Innovations and Technology in Computer Security Conference in Lisbon, Portugal, on June 27-29. Only 34 percent of the papers submitted (68 out of 200) were accepted.

Dr. Gary Bolyard, Assistant Professor of Technology, received a $6,000 grant from the WVU State Department of Education to establish a new course — Computer Security and Protection of Information. The course will be offered to all 50 states and five countries. The WVU Education team members from NASA W.Va. EPSCoR are developing the course with a local company to provide security courses and training as per OSHA requirements. The training will include computer science and security knowledge as furnished the company with site-specific training.

Dr. Sue Goodwin, Professor of Mathematics, presented “Book a Math Trip” for the West Virginia Council of Teachers of Mathematics Conference in Flatwoods on March 18. The presentation discussed the development of a collection of books and literature to teach mathematics. With the help of FSU librarians, she gathered 50 of our nearly 300 titles to illustrate the talk. She is serving on the state research study team on behalf of Project Merit studying what is happening in middle grades across the state. This is part of the two-day Project Merit evaluation. Project Merit is a five-year middle school initiative to bring standards-based teaching and learning to West Virginia middle schools. Eighteen of FSU pre-service teachers participated in Merit Training at FSU for two-day workshops and extended training.

Many FSU pre-service teachers are placed with merit-trained teachers during their student teaching experience.

Dr. Deb Hemler, Associate Professor of Science Education and Director of Science Education Programs, presented a paper at the 11th Annual Space Education and Training Conference at Miami University in Ohio.

Mr. Randall Baker, Assistant Professor of Computer Science, attended the 11th annual Space Education and Training Conference at Miami University in Ohio. In addition to giving a presentation on the AP grading process, Tobin also attended the 11th annual Space Education and Training Conference at Miami University in Ohio.

Mr. Philip Freeman, Assistant Professor of Architectural Engineering Technology, has developed the course "Computers in Architecture," which was developed for CSU’s School of Architecture and Design. The course is offered to all 50 states and five countries. The course is required for all students in the School of Architecture and Design.

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