



STEM2Stern

Opening Minds • Capturing the Future



CAPTURING THE FUTURE
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NAVY PROFESSOR SERVES AS STEM ROLE MODEL ON SHIP OF EXPLORATION

BY SANDRA WITTEN and ALLISON FUNDIS



Capt. Emil Petrucio aboard the E/V Nautilus (Photo by Ocean Exploration Trust)

Capt. Emil Petrucio, assistant professor of oceanography and associate chair of the oceanography department at the U.S. Naval Academy, joined the Ocean Exploration Trust's (OET) Exploration Vessel (E/V) Nautilus during its exploration of the Cayman Trough in August. Petrucio served as a navigator and engaged in live outreach from the ship via the satellite "telepresence" system – providing updates to www.nautiluslive.org, as well as aquariums, museums and science centers.

He also taught remote classes at the Naval Academy. He was joined on board by participants in OET's Science and Engineering Intern Program (SEIP), Science Communication Fellowship Program (previously Educators at Sea) and Honors Research Program (HRP), all supported by the Office of Naval Research.

From June through November 2013, E/V Nautilus was in the Gulf of Mexico and the Caribbean Sea exploring the geological, biological, archaeological and chemical aspects of these regions using remotely operated vehicles at depths up to 3,500 meters. The Nautilus Live website engaged online visitors in real-time research and discovery via live video feeds, commentary and interactive question-and-answer sessions.

Cmdr. David Robillard, of the Naval Academy, set sail on E/V Nautilus off the Puerto Rico coast Oct. 4-10. Dr. Robert Ballard on Dec. 2 will summarize the expedition results in a lecture at the Naval Academy, where he hopes to recruit Midshipmen to the program for 2014.

OET's educational programs emphasize and engage educators and students of all ages in STEM disciplines through ocean exploration. The STEM Science Communication Fellowship Program trains formal and informal educators in STEM communication. The HRP engages rising high school seniors in a five-week summer program culminating aboard E/V Nautilus or a partner ship of exploration. The SEIP provides at-sea training for undergraduate and graduate students in ocean science, engineering and video engineering and production.

More information about OET's educational programs and applications for SEIP, HRP and the STEM Science Communication Fellowship are available at www.oceanexplorationtrust.org.

FRC DEVELOPS HOME GROWN WORKFORCE

BY BETTINA JAHR

Developing the science, technology, engineering and mathematics workforce of the future starts one student-employee at a time for the Fleet Readiness Center (FRC) East in Cherry Point, N.C. With a unique work-study and distance-learning program, FRC is cultivating local students for a promising future in the naval engineering workforce.

Through the Engineering Development Assistance Program (EDAP), the installation's Research and Engineering Group enables students to work in Cherry Point while earning a bachelor's degree at an accredited university more than 100 miles away.

EDAP participants accept an engineering technician (GS-04 student trainee) position at FRC East, receiving work assignments and on-the-job experience as they pursue four-year engineering degrees. Students complete their general education requirements at nearby Craven Community College's Havelock-Cherry Point Campus, but finish the remaining two years at North Carolina State University (NCSU) in Raleigh via live and taped video sessions, lectures and lab exercises.

One EDAP engineering student trainee is slated to graduate from NCSU in spring 2015, but the program's first class graduated in May 2012, and all four grads now work as full-time permanent mechanical engineers supporting various aircraft platforms at FRC East.

While enrolled in EDAP, the 2012 class designed an AV-8B wing stand, which has subsequently been approved for use by FRC East Production. This was a real world example of how this program provides qualified engineering students with work experience in their degree areas, while supporting their career objectives and providing FRC East with valuable manpower and resources.

FRC East is one of eight naval outposts for aviation maintenance, repair and overhaul capabilities and services in the United States, employing more than 500 engineers. The North Carolina State University-Craven program, partnered with the Research & Engineering Group



Left to right: Jon Denn, Jordan Lewis, Dr. Bill Fortney (NCSU Regional Director for Distance Education), Joshua Corbett and Cliff Guthrie (photo by Public Relations Department at Craven Community College)

at FRC East, is specifically tailored to meet the need for qualified engineers to provide worldwide in-service engineering support for the entire Navy and Marine Corps vertical lift aircraft inventory.

For more information on FRC East's EDAP program, visit http://www.engr.ncsu.edu/mes/media/pdf/EDAP%20FLYER_FINAL_9FEB2010.pdf

STEM ON A 'GIRLS DAY OUT'

BY KIMBERLY CSANADI



Students, parents and university volunteers at the San Diego State University GDO event on Sept. 28, 2013 (photo by Kathleen Gately)

The face of Navy K-12 outreach takes many forms—from parents and Navy reservists to science, technology, engineering, and mathematics (STEM) professionals and teachers—but at the Space & Naval Warfare (SPAWAR) Systems Center Pacific (SSC Pacific), San Diego one very distinct group of faces are those of their college interns.

Myself, a chemical engineering student at University of California, San Diego (UCSD) and Emily Escalante and Jessica Brown, both mechanical engineering students at San Diego State University (SDSU), lead several 2013 "Girls

Day Out" (GDO) events, leaving a positive and inspiring impact on girls across the San Diego area.

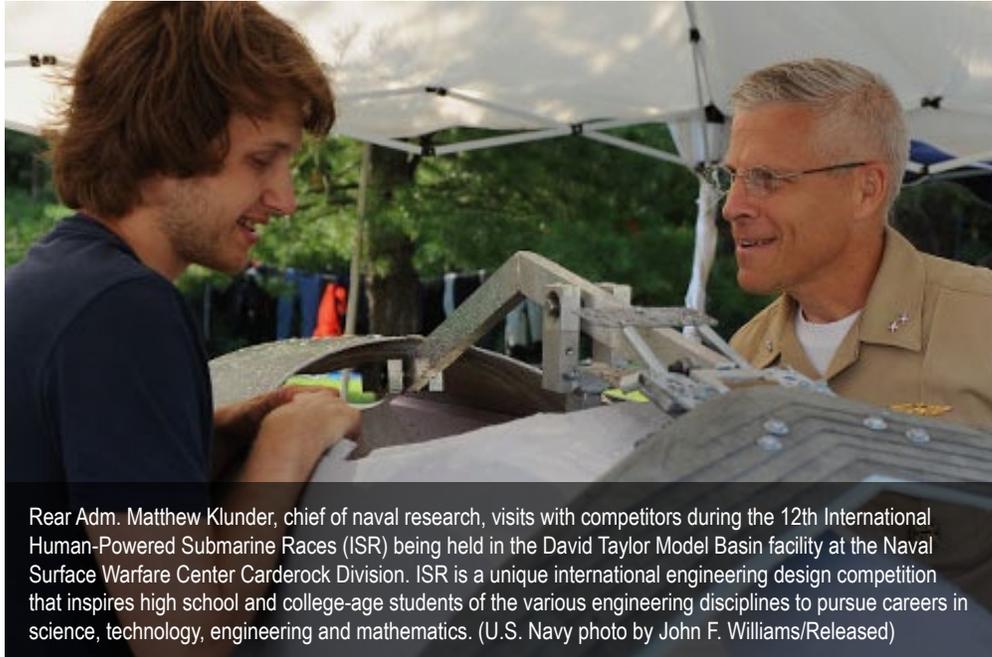
SSC Pacific instituted GDO in 2008. Aimed at female middle school students, GDO students have the opportunity to attend a full day's worth of STEM events at one of the local universities—exploring opportunities through female keynote speakers, university lab tours and engineering demonstrations.

Additionally, these events allow girls to interact with female engineering college students who volunteer at the event to serve as role models to the young students.

Local universities have been able to leverage SPAWAR's GDO model and customize these events for their campuses. Within the last six months, two GDO events were held: one at UCSD, focused on inspiring females interested in computer engineering, and another at SDSU, which highlighted the design process by challenging teams to engineer a prosthetic arm.

During these events, the SSC Pacific interns strive to engage young minds, share their enthusiasm for intellectual exploration, and remind themselves of the curiosity that initially inspired them to pursue a career in a STEM field.

MESSAGE FROM THE NAVAL STEM EXECUTIVE



Rear Adm. Matthew Klunder, chief of naval research, visits with competitors during the 12th International Human-Powered Submarine Races (ISR) being held in the David Taylor Model Basin facility at the Naval Surface Warfare Center Carderock Division. ISR is a unique international engineering design competition that inspires high school and college-age students of the various engineering disciplines to pursue careers in science, technology, engineering and mathematics. (U.S. Navy photo by John F. Williams/Released)

The weather is getting colder, but the incredible work being done by all of you in the naval STEM community continues to warm the hearts of everyone who learns about your efforts. Your encouragement to younger generations to take up science, technology, engineering and mathematics (STEM)—and your guidance and support of those who teach them—serve as a reminder to all Americans of the vital importance STEM education will play in shaping our nation's future.

While some might think of STEM as a nuts-and-bolts, number-centric effort, what it is really about is inspiration. Seeing the advanced technologies of today can (and does) inspire kids and adults alike to consider the possibilities for the future. And nowhere is that more evident—and the need for future workforce more clear—than in the fields of computer science/information technology (IT) and engineering.

Quite simply, we need talented people to get involved in these science and engineering fields. As technology becomes an ever-more vital part of our daily lives, including our national defense, it will be important to increase the numbers of young professionals entering STEM careers. The demand for skilled IT workers, for instance, has never been greater. Information from the Bureau of Labor Statistics suggests that IT occupations, including computer software engineers and network/computer systems administrators, will lead job growth over the next decade. To those of you teaching or mentoring young people in IT or engineering, your efforts are invaluable.

As the Chief of Naval Research and the naval STEM executive, I am proud to lead the Office of Naval Research, which serves our Sailors and Marines by sponsoring scientific research that will enable their future operational success as they defend this great nation. Our family of scientists, engineers and other professionals is well aware of the challenges ahead—and the need for the next generation of innovators.

In this issue of the Capturing the Future, you will find accounts of real students whose lives have been changed by the STEM efforts of teachers, administrators, mentors, employers and more. As they move forward in science and engineering-related fields, so too does the nation. To these exemplary young scientists and engineers—Jessica Brown, Kimberly Csanadi, Emily Escalante, Blake Guidice, Curtis Koster, Grace Magdamo and Lonnie Parker—we offer warm wishes of support and appreciation, as we do to all those who have worked so hard to encourage and teach them along the way.

Matthew L. Klunder
Rear Admiral, U.S. Navy
Chief of Naval Research
Naval STEM Executive

STUDENT SPOTLIGHT: BLAKE GUIDICE

My experience in the Science and Engineering Apprenticeship Program (SEAP) this past summer at the Naval Postgraduate School (NPS) in Monterey, Calif., was invaluable. The science, technology, engineering and mathematics (STEM) opportunities, resources and educational training available at NPS seemed never-ending, and the relationships I built with my fellow lab interns, military graduate students and professor-mentors were special.

I worked in the Space Systems Engineering Group under the mentorship of Dr. James Newman, a former astronaut. My two-month lab project entailed designing, constructing, encoding and then launching a high-altitude weather balloon payload. The research, advanced math and equations, technical skills and overall precise engineering required to develop such a small piece of hardware was remarkable. Our "HAB Lab" was a branch off from the main Cube-Satellite Lab, in which our group of six summer interns from SEAP, Naval Research Enterprise Internship Program and Hartnell College worked daily.



While my SEAP internship officially ended in late August, my lab team is voluntarily working on an exciting new HAB project—code-named "Project Stratosphere"—that is far more advanced. We collaborate regularly and hold scheduled video-conferences to promote and track progress.

In addition to the lab experience, we attended lab tours presented by fellow interns and had weekly professional development seminars. We also met the president and the dean of research for NPS.

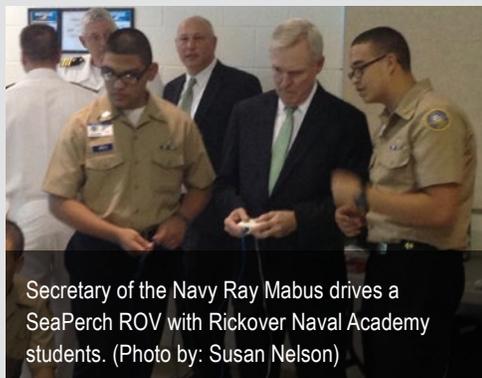
Due to my SEAP experience, I have committed to applying to the U.S. Naval Academy as a potential midshipman for the class of 2014. I plan to major in either nuclear, mechanical or aerospace engineering. I fell in love with the code of conduct, honor system and leadership demonstrated by those at NPS. It is a lifestyle that I envision for myself as I face the future.

SEAPERCH JOINS CRITICAL MASS PROGRAM

BY SUSAN NELSON and
CHERYL HEDEEN

SeaPerch is an innovative underwater robotics program, which teaches middle and high school students how to build an underwater remotely operated vehicle (ROV) from a kit of low-cost, easily accessible parts. The curriculum teaches basic engineering and science concepts with a marine engineering theme and provides students with the opportunity to learn essential skills such as problem solving, critical thinking and teamwork, while assembling and testing the ROVs.

On Sept. 12, SeaPerch was featured as one of the after-school enrichment programs for the Navy's Critical Midwest Association for Science and Service program, and was showcased at Michele Clark High School, a charter science, technology, engineering and mathematics school



Secretary of the Navy Ray Mabus drives a SeaPerch ROV with Rickover Naval Academy students. (Photo by: Susan Nelson)

in Chicago's west side. Secretary of the Navy Ray Mabus and Chicago Mayor Rahm Emanuel, along with officials from ONR and the Chicago school system, observed a SeaPerch demonstration and attended a roundtable discussion. Susan Nelson, executive director of SeaPerch, was on hand along with students and officials from Rickover Naval Academy to showcase SeaPerch.

Mabus and Emanuel had the opportunity to drive the robots and quickly determined that the students were much better drivers and that the future was in good hands!

For more information about SeaPerch, visit www.seaperch.org.



NAVY, CITY OF CHICAGO TEAM UP

BY ERIC BEIDEL



Secretary of the Navy Ray Mabus meets with students from the Rickover Naval Academy during a science, technology, engineering and mathematics (STEM) event at Michele Clark High School. During his visit, to the school Mabus also took part in a roundtable discussion with students and reinforced the importance of STEM education to the future of the U.S. Navy and Marine Corps. (U.S. Navy photo by Mass Communication Specialist 1st Class Arif Patani/Released)

The Department of the Navy (DoN) and City of Chicago have kicked off a unique collaboration to give high school and community college students an intense, hands-on experience in naval-relevant science, technology, engineering and mathematics (STEM) education.

In September, Assistant Chief of Naval Research Capt. Rob Palisin and Office of Naval Research (ONR) Deputy Director of Research for STEM Chris Fall traveled to Chicago to observe the new program in action at Rickover Naval Academy and Michele Clark High School. Secretary of the Navy Ray Mabus and Mayor Rahm Emanuel also visited the schools and participated in a SeaPerch demonstration at Michele Clark and then held a roundtable discussion with students there.

"This partnership with the City of Chicago will allow Chicago educators to work alongside Naval STEM experts to transform the way students will learn," Mabus said. "A highly trained STEM-capable workforce allows the Navy and Marine Corps to run our ships, fly our planes and design the next generation of warfighting tools."

Critical MASS (Midwest Association for Science and Service) is a five-year, \$2 million investment that will bring enrichment programs to seven Chicago high schools: two military academies and five STEM high schools. It will serve as a national model for integrating new technologies into STEM education.

Each year, a new group, or cohort, of students will be selected from the seven participating schools. Each cohort will stay together throughout high school and participate in summer enrichment programs, year-round mentoring, in-classroom enrichment, work study/internship programs and college-level, dual degree computer science/cyber-focused classes developed by City Colleges of Chicago. Officials will rely on several naval STEM programs and projects to enhance the curriculum, which will cover everything from aero and hydrodynamics to solid-state electrical components and nuclear reactions.

"Our Navy needs engineers, naval architects and weapons developers," said



ONR LEADER VISITS CADETS AT RICKOVER NAVAL ACADEMY

BY SIERRA JONES

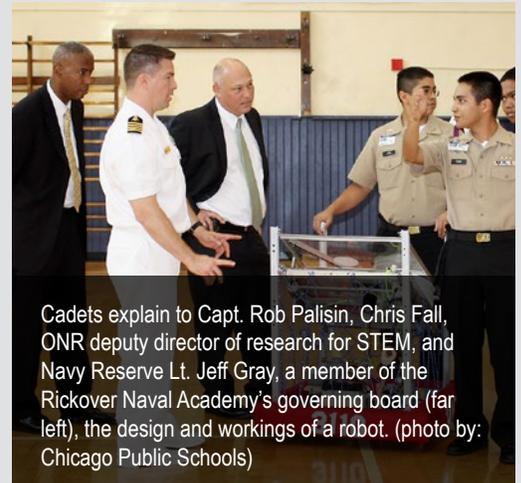
Chief of Naval Research Rear Adm. Matthew L. Klunder. “More than half of our science and engineering professionals will be eligible for retirement by 2020, so we have to develop these important skills in the generation going through high school right now.”

Klunder leads ONR and serves as the DoN’s executive agent for STEM-related initiatives. The collaboration with Chicago Public Schools will provide STEM enrichment programs that span ninth grade to community college, both during the academic school year and the summer.

Critical MASS began in July with an initial summer camp and a Curriculum Day, which brought together Navy experts, curriculum designers, representatives from the mayor of Chicago’s office, school administrators, teachers and City Colleges of Chicago faculty members for a discussion of programming opportunities in both after-school and in-class environments.

The goals of the five-year program call for increasing interest in, and relevance of, STEM learning in Chicago-area high schools; STEM competency in Chicago high schools; numbers of academically prepared students entering community colleges and four-year institutions in STEM fields; competitiveness and diversity of students applying for admission to military service academies or ROTC programs; awareness and interest in STEM career options with the DoN and women and minority participation in STEM.

“The Critical MASS project is an exciting initiative that is bringing STEM education to many students and creating innovative opportunities for our promising young people,” Emanuel said. “I’m thankful to the Navy and Secretary Mabus for seeing in Chicago an opportunity to create a new model, and I look forward to working to increase access to this program in Chicago.”



Cadets explain to Capt. Rob Palisin, Chris Fall, ONR deputy director of research for STEM, and Navy Reserve Lt. Jeff Gray, a member of the Rickover Naval Academy’s governing board (far left), the design and workings of a robot. (photo by: Chicago Public Schools)

On Sept. 12, Assistant Chief of Naval Research Capt. Rob Palisin, from the Office of Naval Research, visited with cadets at Hyman G. Rickover Naval Academy in Chicago.

Rickover is one of seven schools participating in the Critical MASS initiative, an educational partnership between the Department of the Navy and the city of Chicago.

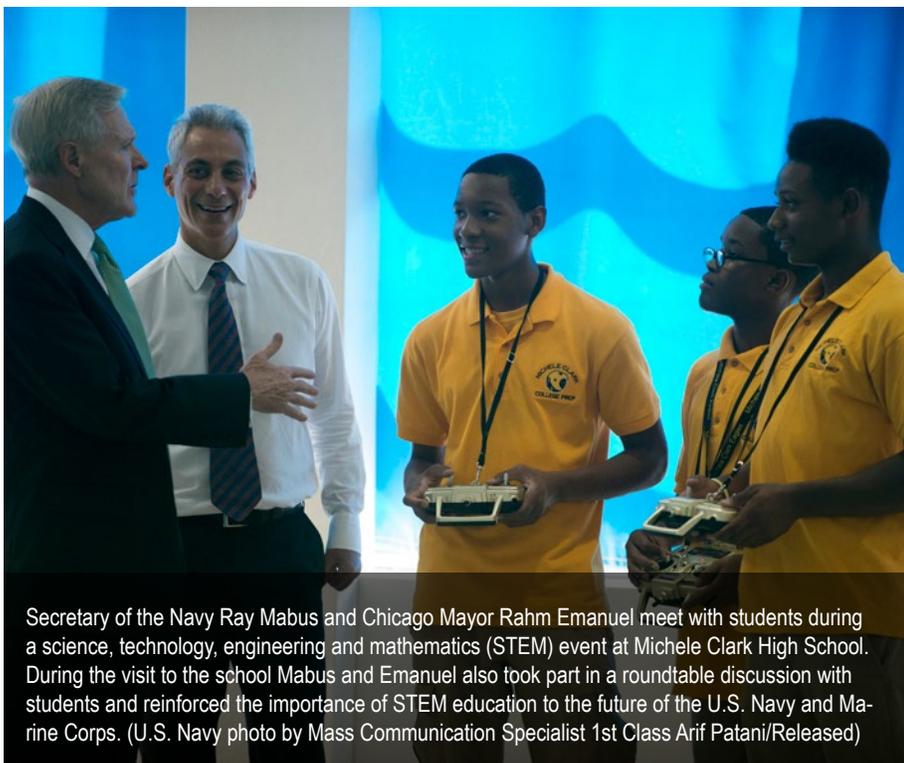
“It’s an honor to meet such outstanding students,” said Palisin. “They represent the future workforce and their participation in the Critical MASS initiative will continue to help them develop the skills needed to meet the growing demand in both IT and engineering fields.”

During his visit, Palisin met with cadets, toured the library, visited classrooms and watched drills.

“The U.S. Navy and Marine Corps, and the nation, are counting on the great efforts made by teachers and students like these in order to lead and expand our science and technology horizons,” said Palisin.

Rickover opened on Sept. 6, 2005 with 120 cadets and 12 staff members. Today, Rickover is Chicago’s leading military academy with more than 450 cadets and a staff of 35.

For more information about Rickover, visit <http://www.rickovernaval.org/>.



Secretary of the Navy Ray Mabus and Chicago Mayor Rahm Emanuel meet with students during a science, technology, engineering and mathematics (STEM) event at Michele Clark High School. During the visit to the school Mabus and Emanuel also took part in a roundtable discussion with students and reinforced the importance of STEM education to the future of the U.S. Navy and Marine Corps. (U.S. Navy photo by Mass Communication Specialist 1st Class Arif Patani/Released)



STUDENT SPOTLIGHT

GRACE MAGDAMO



When I started sixth grade, “stem” was just part of a plant. It did not yet mean anything more, especially not a career choice. That year, I built a SeaPerch, a remotely operated vehicle, as a class project and realized that I really liked “STEM” (science, technology, engineering and mathematics).

Throughout middle school, I helped teach younger students from my school how to build SeaPerch. In my freshman year at Watkins Mill High School, I took an engineering design class and loved working with the Autodesk Inventor software and using the school’s 3-D printer to create virtually anything. I was so enthusiastic about my activities that I returned to my former elementary school and started a STEM club for fourth graders. In the club, I led students in various projects, including making robots out of toothbrushes, designing spacesuits for potatoes, and constructing and programming a LEGO® MIND-STORMS® robot. I hope that I have set an example for these students by showing that learning can be fun, and both boys and girls have the ability to do

great things in STEM.

This past summer, I was selected for an internship at Carderock Naval Surface Warfare Center in Bethesda, Md. I worked with naval engineers on their projects and was delegated a few independent projects where I designed and tested a flotation device and wrote a program to operate live cameras. These activities have been invaluable to me. Not only have they enhanced my college applications, but now I don’t have to imagine what engineers do: I have worked in their labs, used their programs, assisted in their projects, and I am ready to do it again next summer. During my internship, I particularly enjoyed programming with LabVIEW, a visual-based language optimal for system design. Because of this, I decided to take programming this year and in the future in college.

When I begin college next fall, I plan to enroll as an engineering major. I am exploring the possibility of majoring in computer engineering, which I may use to come back and work for the Navy after my education is complete.

My name is Curtis Koster and I am majoring in computer science at Bob Jones University in Greenville, S.C. I have had the privilege of working at Naval Surface Warfare Center (NSWC) Carderock for the past six summers. I learned about the Navy’s Science and Engineering Apprenticeship Program through one of my dad’s colleagues. Hearing about the cool projects they worked on, I immediately applied for an internship.

My application was accepted and I started my internship in 2007 working for Dr. David Coakley in the Maritime Systems Hydromechanics Branch. The first project I worked on was his new ship-stopping system idea that was designed to safely stop a ship without damaging it or injuring the crew. While assisting with the project I learned how material properties were analyzed, selected and tested.

My assistance on Coakley’s project spanned several summers and I was able to witness firsthand how a project progresses from initial concept, through design stage, component and subsystem testing, full-

scale prototyping and sea trial demonstration.

Working in the Maritime Systems Hydromechanics Branch with technical experts Dr. Coakley, Stephen Ebner, Damien Brettal, Alexander Tsarev, and Andrew Krauss has been a real honor. There wasn’t a day that I did not learn something new. The engineering department’s willingness to allow a student to provide hands-on assistance to projects that support our national defense effort is something for which I will be forever grateful.

For the last few summers, I was given the opportunity to assist with several other naval projects. I created computer-aided design drawings for test fixtures, created a database for parts inventory control and helped analyze test data using Microsoft Excel’s plotting capabilities.

All of my experiences at NSWC Carderock have been exceptionally positive and a real motivation to complete my bachelor’s degree in computer science. My hope is that I will be able to work with the great folks at NSWC Carderock again next summer.



CURTIS KOSTER

ROBOTS BUILD BRIDGE TO SUCCESS FOR FIRST-YEAR STEM STUDENTS

BY AYLEEN BARBEL FATTAL
(published on FIU NEWS, 08/07/2013)



First-year engineering students build the SeaPerch underwater robot. (Photo by Chris Necuze for FIU NEWS)

The Bridge to Success program at Florida International University (FIU) is providing valuable resources for first-year science, technology, engineering and mathematics (STEM) students as they embark on their college careers.

Funded by the Office of Naval Research, the program is designed for incoming engineering, computer science and physics students to participate in the research, building and demonstration of a science and engineering project.

This year, 27 students formed three research groups to construct and operate an underwater remotely operated vehicle (ROV) as part of SeaPerch—an innovative underwater robotics program.

The groups participated in a series of physics and building challenges designed to encourage brainstorming and teamwork, apply basic design and engineering principles, and learn to use and identify tools properly. They also worked on building and modifying the ROVs to be tested at the FIU pool. The teaching staff included local Miami-Dade Public Schools teachers, FIU faculty and undergraduate and graduate learning assistants.

“I’d like to change the mindset of physics as a scary beast, of math as this other worldly language,” said Omar Leon, plasma physics Ph.D. candidate and third-year learning assistant.

“These students will start their first day of class knowing 20 other people who they can come talk to and ask questions to. They actually have a support group that will hopefully help carry them all the way to graduation.”

According to the President’s Council of Advisors on Science and Technology (PCAST), the first two years of college are the most critical to retention of STEM majors. Research shows retention can be improved by providing intellectual engagement and a strong sense of community among STEM students. The Bridge to Success program is designed to do just that.

“The community is intended to support retention and learning for the students,” said Laird Kramer, director of FIU’s STEM Transformation Institute. “Connecting students is one key in retaining them.”

PCAST also reports that less than 40 percent of U.S. college students who begin their collegiate careers with the intention of majoring in a STEM field complete a STEM degree. FIU hopes to make a significant dent in that statistic.

During the next four years, FIU will track the progress of the students who have been through the Bridge to Success program to help quantify its impact on retention for STEM majors.

STUDENT SPOTLIGHT: LONNIE PARKER

WHAT A DIFFERENCE SIX YEARS MAKE

Today’s students are leveraging information technology to enhance their engineering knowledge and networking opportunities. From collaborating with others on “the cloud” to online lecture notes and massive open online courses, students have multiple methods to help jump-start their careers after graduation.

In 2007, I did not have access to these methods; I had email. However, it was a simple email seeking applicants for the Science, Mathematics and Research for Transformation (SMART) Scholarship for Service Program that helped launch my career with the Department of Defense.

The SMART program provides opportunities for students pursuing undergraduate or graduate degrees in science, technology, engineering and mathematics (STEM) disciplines to receive full scholarships with a promise of employment upon graduation. Following my graduation from the Rochester Institute of Technology, I received the email about SMART and applied right away. I was accepted into the 2007 fellowship cohort. The SMART program provided me with the support needed to pursue a Ph.D. in the field of robotics and autonomy at Georgia Tech.



As a graduate student and SMART Fellow, I spent summers interning at the Naval Undersea Warfare Center (NUWC) in Newport, R.I., where I learned how to apply my degree to Navy-specific problems. Every task presented to me was unique and relevant to my studies. Whether I was testing heading sensors for towed array technologies or serving as a mentor for the Undersea Technology Apprentice Program, each opportunity expanded my technical and professional network. Upon graduation I became a full-time employee at NUWC. My exposure during my SMART fellowship has made my transition a seamless one, allowing me to begin carefully crafting how I can best contribute to the fleet.

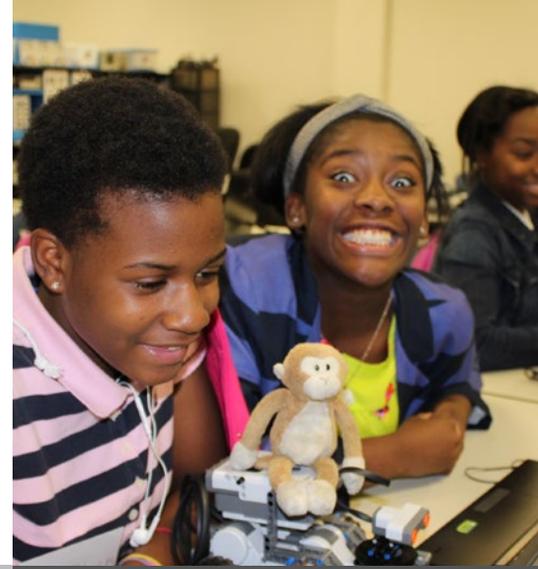
I look back fondly on that opportunity, which came disguised as a simple email. I encourage others to pay close attention to what they may find in their own inboxes and never discount where it may lead them.

ABOUT STEM2STERN

STEM2Stern is the Department of the Navy's science, technology, engineering and mathematics (STEM) initiative. Under the leadership of the chief of naval research, who serves as the naval STEM executive, STEM2Stern works with the naval systems commands, laboratories, warfare centers and other research and education institutions to leverage resources and maximize the impact of the department's STEM investments.

These investments support a wide variety of STEM educational programs, ranging from activities designed to spark younger students' interest in STEM careers, to more in-depth, hands-on learning opportunities for middle and high school students, internships and research fellowships for older high school and post-secondary students and professional development opportunities for naval STEM professionals and faculty. STEM2Stern.org provides information about STEM projects sponsored by the U.S. Navy. This includes recent news about the programs, as well as specific program descriptions and success stories. Visit **STEM2Stern.org** to learn more!

To contact the office directly, send emails to **info@stem2stern.org**.



TRAINING THE TRAINERS: NAVAL ACADEMY HOSTS WORKSHOPS FOR STEM EDUCATORS

BY ANGELA MORGAN

September is back to school time for most K-12 students across the country, but this fall, 60 teachers found themselves in school too, as they took part in a series of workshops for science, technology, engineering and math (STEM) educators hosted by the U.S. Naval Academy in Annapolis, Md.

Called SET Sail, the workshops aim to equip and empower K-12 teachers with tools to boost student enthusiasm and learning retention in the sciences. Sessions introduce classroom leaders to STEM instruction techniques with a focus on topics of naval relevance, and that support the alignment of math and science standards with project-based learning.

SET Sail places particular emphasis on successfully replicating curriculum activities on a limited budget and extending topics across disciplines and grade levels—all of which participants are encouraged to share with their colleagues back home.

The academy's STEM office provides the training, hosting a diverse group of educators hailing from both urban and remote areas of the United States as well as international locations, such as Department of Defense Education Activity (DoDEA) schools in Japan, Korea, the Netherlands, Turkey, Guam, Italy and Spain. Many of the attendees also function as school STEM specialists, principals, department chairs, engineering instructors, club coordinator and curriculum specialists.



Designing a marble maze with strict requirements is one of several engineering design competitions for attendees of the STEM Educator Workshops at USNA.

Topics include fluid dynamics, laser physics, alternative energy, corrosion and electrochemistry, applied math, bioterrorism, electronics, materials engineering, engineering design, mechanics, simulation and modeling, and forensics. Engineering design, electrical engineering and alternative energy, ocean engineering and applied math ranked among the most utilized lesson areas.

Gina Tesoriero, a DoDEA middle school teacher, shared: "The SET Sail program provided me the opportunity to collaborate with fellow STEM educators. The activities supported my background knowledge on more advanced topics in STEM and better prepared me to be a STEM educator."

IMPORTANT STEM DATES

Applications are due 5:30 p.m. eastern standard time on Jan. 6, 2014 for the following Navy internships:

- Science and Engineering Apprenticeship Program (SEAP)
- Naval Research Enterprise Internship Program (NREIP) deadline

NAVAL STEM WEBSITES AND SPONSORED ACTIVITIES

Below is a list of websites that may be of interest to this community. It includes web addresses for various naval programs, as well as some of our signature program partners.

www.usna.edu/STEM

www.seaperch.org

www.iridescentlearning.org

www.goorulearning.org

www.ndep.us

seap.asee.org

nreip.asee.org

www.nmsi.org

www.dodstarbase.org

www.usfirst.org

WWW.STEM2STERN.ORG

