



September 2012  
USNA STEM  
Newsletter

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Reunion*



# STEM

At the United States Naval Academy

*Science \* Technology \* Engineering \* Mathematics*

*The USNA STEM Office is focused on addressing an urgent national priority—persuading more young people to pursue careers in science, technology, engineering, and mathematics while engaging our own midshipmen in quality STEM programs and outreach to the community.*

*The Odgers Professorship was established in 2010 by a private testamentary gift to the US Naval Academy Foundation from the Carol and Ralph E. Odgers Family Trust.*

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[www.usna.edu/STEM](http://www.usna.edu/STEM)  
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## Mini-STEM

*September 14th, 2012*

Students from the Bronx Aerospace High School and the Young Women's Leadership Schools of NYC visited the Naval Academy and experienced the innovative, project based workshops of the USNA STEM Program. Workshops included Searching for Unobtainium (Prof Joel Schubbe), Storm Chasing (LCDR John Woods), Oceaneering (Dr. Beth Mutch) and Bioterrorism (Dr. Sarah Durkin). A Fluids presentation was provided by Prof Mark Murray and LCDR Gwen Gray led a tour through the Engineering spaces.



# SUMMER 2012 HIGHLIGHTS:

*Summer 2012 saw the return of the popular STEM Camps and SET SAIL Teacher Training hosted at the Naval Academy.*

In June, high school students from around the country came to attend one of the three full week sessions of the Summer STEM Program; this year's theme was "*Extreme Technology: Annapolis Edition.*" Faculty and staff lead innovative, hands on modules in engineering, science, and technology. At the end of a week's work students were given the opportunity to choose a module that they wanted to learn about more in depth and then present their findings to other students, friends and family, and USNA faculty and staff at the Technology Fair. 2012 Summer STEM offered a new third week program this year. Week Three was tailored for the older students to more closely simulate a professional conference. Students discussed engineering and scientific concepts within the space of longer sessions, allowing more depth and greater feedback. They also engaged in design challenges and competitions.



Also in June, the STEM Office hosted its popular "*Girls Exploring Technology through Innovative Topics*" (GET-IT). This program, developed by female engineering faculty at USNA was created to introduce and encourage middle school girls to careers in engineering. The theme for this summer was "*DESTINATION: Design – Engineering Your Future.*" The week included hands-on tailored workshops, design challenges, and daily talks from real women 'heroes' in various STEM fields.

## SUMMER 2012 HIGHLIGHTS CONTINUED



In July teachers from across the country and around the world attended the STEM Educator Training (SET) SAIL annual workshops, hosted at USNA by the STEM Office, the National Defense Education Program, MD Space Grant Consortium, and the Office of Naval Research. Teachers attended workshops focusing on the use of project based learning in design, chemistry, physics, math, simulation, biology, and engineering. These workshops offered teachers an opportunity to engage more fully in their educational fields by exploring and testing ideas in a creative and hands-on environment. Experiments and learning assessments were led by faculty and staff members from a number of STEM departments. Teachers were encouraged to share best practices and application methods.



All three programs were successful, not only by exciting interest in those who participated, but by bringing together faculty, staff, and midshipmen into leadership and support roles, which were both challenging and educational.

# MARYLAND MESA WELCOMED AT USNA

In July and August two groups of high school students from the Maryland Mathematics Engineering Science Achievement (MESA) initiative were introduced to STEM activities at USNA. The group participated in the new bioterrorism hands-on module and toured many of the STEM laboratories and work spaces at the Academy. USNA has supported a number of MESA activities including STEM days for middle school students across the state. This group was sponsored by CAPT Cynthia Macri of the CNO's Diversity Office.



MD MESA's mission is to "...prepare students for academic and professional careers in mathematics, engineering, science, and technology." One of the ways MD MESA strives to meet this goal is through partnerships with different colleges and universities in an effort to engage aspiring students in the varied and exciting opportunities of a STEM education and career.



*"It's all part of the STEM learning process and what we offer here in terms of outreach to the local community and students across the country," said STEM Director Angela Moran.*



# CANDIDATES VISIT USNA



**O**n September 21<sup>st</sup>, the United States Naval Academy welcomed the first group of candidates of the 2012-2013 academic year for an informative talk, a tour of the lab decks, and a question and answer period with a panel of midshipmen.

CAPT Jay Bitting, the director of the Division of Engineering and Weapons, and CAPT John O'Neill, the director of the Division of Mathematics and Science, began the afternoon by discussing academic options at the Academy. They outlined the general courses required of a midshipman and the various paths of a STEM major, stressing the importance of those majors to the Navy.



## 23 Academic Majors

- |  |   |
|--|---|
| <i>Division of Engineering &amp; Weapons:</i>        | <i>Division of Mathematics &amp; Science:</i> |
| - Aerospace Engineering                              | - Chemistry                                   |
| - Electrical Engineering                             | - Computer Science                            |
| - General Engineering                                | - General Science                             |
| - Mechanical Engineering                             | - Information Technology                      |
| - Naval Architecture                                 | - Mathematics                                 |
| - Ocean Engineering                                  | - Quantitative Economics                      |
| - Systems Engineering                                | - Oceanography                                |
| - Computer Engineering                               | - Operations Research                         |
|  | - Physics                                     |
| <i>Division of Humanities &amp; Social Sciences:</i> |   |
| - Economics  |   |
| - English  |   |
| - History  |   |



The group was then split into smaller sections and assigned a STEM Midshipman. These smaller groups were taken on a fast-paced and information packed tour of the lab decks of Rickover, Maury, Michelson, and Chauvenet. Midshipmen were energetic and excited to talk about the opportunities offered to them by STEM fields, and to answer the candidates questions about their options.

This enthusiasm continued into the last part of the day where candidates were afforded the opportunity to talk to a panel of STEM midshipmen. The covered topics ranged from the day-to-day life of a midshipman to the specific responsibilities and opportunities that a STEM major offers.

# CLASS OF '82 REUNION A "THANK YOU" STEM EVENT



USNA STEM Office extended a special "thank you" to our Class of '82 sponsors by hosting a STEM event just for them on Friday, Sept 28, during their class reunion. Over 70 folks enjoyed interactive demos of Biometrics, Fluid Dynamics, Aerospace, Arctic Buoys, Storm Chasing, SeaPerch ROVs, Solar Energy, Biofuels, Control Systems, Robotics, and more!



## COMING THIS FALL:

- ◆ EXPANDING YOUR HORIZONS Girls' STEM Day Oct 13
- ◆ SEAPERCH TEACHER TRAININGS
- ◆ More miniSTEMS and Candidate Visits
- ◆ STEM Learning Studios
- ◆ MESA Days
- ◆ STEM on the Road!