USNA STEM OFFICE VISION:
INREACH TO THE MIDSHIPMEN VIA OUTREACH TO THE COMMUNITY
AND RELEVANCE TO THE NAVY

MISSION

The goals of the STEM Outreach Programs at USNA are to:

- Address an urgent Navy and national need for more young people to pursue careers in science and engineering, particularly in technical areas of interest to the military, using Navy-relevant curriculum.
- Act as a focal point for recruiting USNA STEM majors by introducing incoming midshipmen to the rewarding aspects of science and engineering and to encourage retention of STEM majors by engaging them in educational outreach.
- Provide outreach to local and national communities to influence students and teachers in engineering and science studies and to facilitate the recruitment of USNA candidates with an affinity towards STEM majors.
- Prepare midshipmen participants for intellectual challenges by creating opportunities for midshipmen to learn current STEM theory and application, as well as lead in the classroom, strengthen their creative problem solving skills, enhance their innovative thinking, and hone their ability to respond to spontaneous situations.
- Prepare midshipmen to interface with multiple technologies, expose midshipmen to the reality of the interdependence of different disciplines in STEM military technologies, and enhance the technical proficiency and communication skills of our graduates.

Methodology: utilize unique approach to recruiting and retaining technologists by actively engaging elementary/middle/high school students and teachers in a wide variety of science and engineering events (camps, minicamps, competitions, site visits, short courses, internships) to initiate interest and enthusiasm for future STEM participation in academic and career choices. Unique approach is defined by project based, Navy-relevant curriculum, focusing on current topics, and a pyramidal structure with practicing Navy technologists/educators on top and near peer midshipmen acting as the interface with students, using the outstanding USNA resources as a backdrop for the activities.
STEM PROGRAMS ALIGNMENT TO THE NAVAL ACADEMY MISSION and STRATEGIC PLAN 2020

The USNA Mission is to develop midshipmen morally, mentally, and physically and to imbue them with the highest ideals of duty, honor and loyalty in order to graduate leaders who are dedicated to career of naval service and have potential for future development in mind and character, to assume the highest responsibilities of command, citizenship and government. The STEM Program at USNA prepares midshipmen participants for various intellectual and innovation challenges by creating opportunities for midshipmen to learn STEM theory and application, as well as reinforcing the lessons they have learned in the classroom. The STEM program uniquely offers midshipmen a chance to not only participate in, but lead in the classroom. Involvement in STEM includes learning how to set up and execute an experiment, fielding challenging questions, developing an understanding of the underlying theory; all of which strengthens creative problem solving skills, innovative thinking, and the ability to respond to a situation that was not anticipated.

USNA 2020 VISION - to be the nation’s premier institution for developing future naval leaders from diverse backgrounds to serve in an increasingly interdependent and dynamic world. The STEM Program derives its curriculum from the current classroom and the cutting edge of new research, prepares midshipmen to interface with multiple technologies and exposes midshipmen to the reality of the interdependence of the sciences, engineering, technologies, and mathematics.

ATTRIBUTES OF A NAVAL ACADEMY GRADUATE -

  **Inspirational:** Mentally resilient and physically fit officers who inspire their team to accomplish the most challenging missions and are prepared to lead in combat.

  STEM midshipmen are leaders in and outside of the classroom. They learn how to engage and excite members of a classroom discussion, how to teach varied groups, and problem solve during activities. Through their leadership in engaging, hands-on activities, midshipmen are role models and provide a mentoring experience for participants.

  **Proficient:** Technically and academically proficient professionals with a commitment to continual learning.

  STEM midshipmen address technology through project based, hands-on learning, as well as an understanding of the broader academic theory underlying that technology. In order to retain relevance and mastery in the ever changing STEM fields, STEM mids proactively and consistently increase their own knowledge base through hands-on experimental efforts and continued research. The STEM program actively incorporates naval themes and content, as well as cutting-edge technologies, to demonstrate real-world applications. The use of Navy-relevant content builds interest, confidence and skills, for both midshipmen leaders and participants alike, in STEM careers that support the Navy and Marine Corps.

  **Adaptable and Innovative:** Adaptable individuals who understand and appreciate global and cross-cultural dynamics. Critical thinkers and creative decision makers with a bias for action,

  STEM midshipmen address problems as they arise, often unexpectedly at a STEM activity site. Because the STEM program operates in so many different venues, there is no one way to address a problem. Creativity and resourcefulness are paramount. Midshipmen have to be
discerning in their ability to address problems and come up with creative methods of teaching appropriate to each particular situation.

*Articulate: Effective communicators.*

STEM midshipmen interact with staff and faculty, other midshipmen, and the STEM community outside of the Academy at the local and national level. They represent our programs to students of all ages as well as teachers in the inner city, rural counties, and on reservations. Midshipmen have to be able, not only to communicate efficiently with people who understand STEM fields, but teach the importance of STEM education to people who aren’t technically proficient. The ability to break complex concepts into palatable bites leads to more effective communication and education.

**CENTERS OF EXCELLENCE/ACADEMIC EXCELLENCE** - STEM fosters an educational environment that engages and encourages midshipman to become strong students and lifelong learners. STEM faculty employ project based, hands-on teaching methods to promote the value of the midshipmen’s education and ignite the midshipmen’s intellectual curiosity for the technical aspect of our rapidly changing and diverse world.

**IMPERATIVES** - Recruiting and retention of STEM midshipmen assures that USNA will graduate a diverse and talented brigade of midshipmen whose attributes, as well as educational and experiential preparation, meet the Navy and Marine Corps’ current and future requirements. STEM encourages the development of innovative teaching methods and strategies to assure adequate preparation of our midshipmen for the challenges of 21st century warfare. STEM activities provide faculty and staff opportunities to learn and apply best practices in pedagogy and remain leaders in their respective disciplines as well as to develop the professional and academic venues to provide midshipmen with the knowledge and skills to operate effectively as competent officers. STEM fosters an educational environment that supports and encourages innovative and critical thinking, lifelong learning, and persuasive communications. STEM, through community outreach, allows our faculty and especially our midshipmen the opportunity to develop strategic relationships with alumni, friends, and national institutions of influence that contribute to the Naval Academy’s success and America’s security and prosperity by supporting the recruiting and retention of tomorrow’s technologists.