

## **STEM RESPONSE 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 a 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 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, and developing an understanding of the underlying theory. These experiences strengthen creative problem solving skills and the ability to respond to a situation that was not anticipated.

**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.

*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 learning the broader academic theory underlying that technology. In order to retain relevance and mastery in the ever changing STEM fields, STEM midshipmen proactively and consistently increase their own knowledge base through hands on experimental efforts and continued research.

*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 effectively with persons to understand STEM fields, but teach the importance of STEM education to persons who are not technically proficient. The ability to break complex concepts into an easily digestible form leads to more effective communication and education.

## **CENTERS OF EXCELLENCE/ACADEMIC EXCELLENCE**

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

## **IMPERATIVES**

Recruiting and retention of STEM midshipmen and STEM majors 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 21<sup>st</sup> 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 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 faculty and especially 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.