

U.S. Naval Academy
Computer Science Department

Serving the Navy and Marine Corps Through Excellence in Education and Research



“Superior thinking has always overwhelmed superior force.”



Today, computer chips saturate our lives in many forms: in car engines, microwave ovens, video games, watches, telephones, and in classical desktops, mainframes, and supercomputers. The computer industry is one of the fastest growing segments of our economy and that growth promises to continue well into the new century.

The worldwide proliferation of sophisticated aircraft, submarines and surface platforms demands a high level of knowledge of complex computer systems unsurpassed in naval history. In this time critical, multi-threat environment, management of multiple computer systems and the rapid integration, analysis and dissemination of information is critical to the survival of naval task forces.

To maintain a competitive edge, the U.S. Navy and Marine Corps must continue to make creative scientific

and engineering advances in order to produce the best possible weapon, information, and training systems the world has to offer. Persistent development, and innovation of computer technologies manifest themselves as force multipliers in battle. More than ever, there is a demand for officers with the scientific and technical training necessary to perform effectively on the job. Now is the time to plan your future in computer science and information technology.

Offering Two Majors:

- **Computer Science (CS)**
- **Information Technology (IT)**

www.cs.usna.edu

Computer Careers

Computer professionals might find themselves in a variety of environments — analyzing challenges for solutions, formulating and testing, using advanced communications or multi-media equipment, or collaborative teams in systems development. Here is a short list of research and vocational areas in computer science.

Artificial Intelligence (AI) – Develop computer programs that simulate or recognize human learning and reasoning ability.

Enterprise Computing – Design, implement, manage, and modify information systems that optimally support the many and changing needs of organizations.

Software Engineering – Develop methods for the production of cutting edge software systems on time, within budget, and with few or no defects.

Operating Systems and Networks – Develop the basic software computers use to supervise themselves or to communicate with other computers.

Software Applications – Apply computer science and technology to solving problems outside the computer field – in areas such as military training, education or medicine.

Modeling and Simulation – Create computer simulations in all disciplines to solve real world problems and advance the art and science of simulation.

Gaming, Graphics, & Sound – Promote realism in training or entertainment applications by implementing gaming techniques with compelling images and sounds.

Information Assurance (IA) & Security – Protect and defend computer systems on all scales against enemies foreign and domestic: desktops, networks, national systems, global systems.

WWW Design and Support – Artistic, informative, and interactive web design accompanied with both static and dynamic content support.

Two Major Offerings

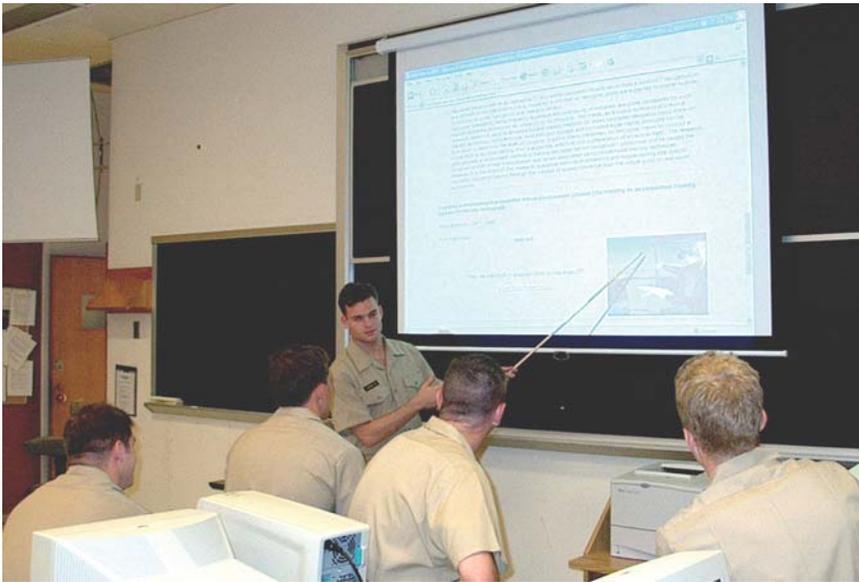
Computer Science Major

The nationally accredited (CAC/ABET) Computer Science major provides an exciting and challenging curriculum that meets the needs of newly appointed naval officers serving in the fleet's surface and ground forces. This curriculum arms midshipmen with strong theoretical and practical foundations, affords enough flexibility to accommodate classical to cutting edge topics in computer science, while allowing midshipmen to explore, in depth, three of the five **core** areas (Algorithms, Concepts of Programming Languages, Computer Organization and Architecture, Data Structures, and Software Engineering).

Information Technology Major

The newly formed Information Technology major has two major components: the **IT core** and the **second discipline**. The core represents courses common to most IT programs in the country. The keywords information, communications, and systems are the central concepts developed in the core. The second discipline provides a basis for participation by a broad spectrum of academic departments and their majors while appealing to a larger number of students with diverse interests. The second discipline has substantial appeal in supporting the Information Technology Integration Committee's (ITIC) goal of "developing a plan to substantially increase the number of USNA graduates with significant expertise in Information Technology by the USNA graduating class of 2010."





*Wireless networking
serving the fleet*

*Group projects
and presentations*

*“The Navy has both a tradition and a future—
and we look with pride and confidence in both directions.”*

USNA Computer Science

The Computer Science Department faculty consists of an exceptionally qualified complement of military officers and civilian professors. All of the officers hold advanced degrees in computer science or related fields and bring fleet experience into the classroom. The military officers provide unique role models to illustrate the very real application of advanced technology in the modern Navy and Marine Corps. Civilian professors hold Ph.D. degrees in computer science or related fields. All offer professional experience in teaching and research and provide continuity within the department. They also afford students the opportunity and recognized honor of doing individually supervised research as a Trident Scholar.

Faculty research interests span the spectrum of computer science, including enterprise computing and distributed networks, artificial intelligence, software engineering, theoretical computing, modeling and simulation.

The faculty provides individualized attention, both in class, where class size averages 15-20 students, and out of class, where extra instruction and independent research are encouraged. Students can expect a challenging environment to promote their maximum development.



*Programming
robotic brains*

The Future

In the rapidly changing field of computer technology, the nationally accredited USNA Computer Science Department is dedicated to remaining on the leading edge of research and technology. Both the **Computer Science** and **Information Technology** majors are dynamic and vital components of the Naval Academy's academic program. They fully equip future junior officers with the skills necessary to serve in today's hi-tech, hi-tempo naval forces while shaping the naval forces and world of tomorrow.



Discover where you fit in. . .



Computer Science Department

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