Naval Science (Naval Reserve Officers Training Corps)

Web Site: https://www.odu.edu/nrotc

Michael C. Bratley, Department Chair

Mission and Basic Program

The primary mission of the Department of Naval Science is to provide professional and leadership instruction to students who desire to serve as commissioned officers in the United States Navy or Marine Corps. The Naval ROTC program is administratively located under the Director of Military Activities and is situated, for academic matters, within the Batten College of Engineering and Technology. (http://www.odu.edu/eng)

The NROTC program consists of two courses of instruction: the four-year program and the two-year program. Both apply to scholarship and nonscholarship (college program) students. The four-year program is divided into a two-year basic course and a two-year advanced course.

The basic course is normally pursued by NROTC midshipmen during their freshman and sophomore years. While most freshmen begin the basic course during the fall, it is possible to enter the program in the spring semester.

NAV 101 Introduction to Naval Science 2
NAV 102 Naval Sea Power 3
NAV 301 Navigation and Naval Operations I 3
NAV 401 Leadership and Management I 3

The advanced course is normally pursued during the junior and senior years.

Accompanying laboratory sessions

NAV 201 Naval Ships Systems I 3
NAV 202 Naval Ships Systems II 3
NAV 302 Navigation and Naval Operations II 3
NAV 402 Leadership and Ethics 3

Students seeking a commission in the Marine Corps or Marine Corps Reserve are not required to take: NAVS 201, NAVS 202, NAVS 301, and NAVS 302 but instead must take NAVS 310 and NAVS 410.

Scholarship recipients supplement classroom instruction with an at-sea training period each summer. College program students supplement classroom instruction with at-sea training during the summer between their junior and senior years. Similarly, Marine Corps option students attend the six-week Marine Officer Candidate School at Quantico, Virginia during the summer between their junior and senior years.

The two-year NROTC program is extended to students who do not participate in NROTC during their freshman and sophomore years. Applications to join must be submitted during the sophomore year. For students entering this program, a six-week summer training period at the Naval Science Institute (NSI) in Newport, Rhode Island following their sophomore year replaces the basic course segment of the four-year program. Students successfully completing summer training enroll in the advanced course for their junior and senior years.

Nuclear Power Option

To be most competitive, those students interested in entering the Navy’s nuclear power program should have a college grade point average greater than 3.00. While any major is acceptable, all applicants must have completed at least two semesters of calculus (MATH 211 and MATH 212, or equivalent) and two semesters of calculus-based physics (PHYS 231N and PHYS 232N). Those students with a major in science, math, or engineering are most desirable. While not required, the following courses are recommended regardless of major for those students interested in navy nuclear power:

- Modern Physics
- Differential Equations
- Thermodynamics (ME)
- Principles of Chemistry
- Circuit Analysis.

Minor in Military Leadership

The minor in military leadership is a high quality, interdisciplinary, multidimensional, experiential, and culturally diverse program that exposes students to, and prepares them for, real life leadership opportunities and challenges. Students explore issues of leadership, citizenship, and social change within the context of an inquiry, experiential, and competency-based instructional design. The minor is open to all students who have completed the prerequisite courses. Students who are not enrolled in the military science or naval science program will receive academic credit for commissioning purposes.

The requirements for students in the Naval Science Department are completion of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Hours</th>
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<tbody>
<tr>
<td>NAVS 302</td>
<td>Navigation and Naval Operations II</td>
<td>3</td>
</tr>
<tr>
<td>or NAVS 410</td>
<td>Fundamentals of Maneuver Warfare</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 301</td>
<td>Navigation and Naval Operations I</td>
<td>3</td>
</tr>
<tr>
<td>or NAVS 410</td>
<td>Fundamentals of Maneuver Warfare</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 310</td>
<td>Evolution of Warfare</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 401</td>
<td>Leadership and Management I</td>
<td>3</td>
</tr>
<tr>
<td>NAVS 402</td>
<td>Leadership and Ethics</td>
<td>3</td>
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<tbody>
<tr>
<td>ENMA 301</td>
<td>Introduction to Engineering Management</td>
</tr>
<tr>
<td>ENMA 401</td>
<td>Project Management</td>
</tr>
<tr>
<td>ENGL 435W</td>
<td>Management Writing</td>
</tr>
<tr>
<td>HIST 360</td>
<td>American Military History</td>
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<tr>
<td>HIST 408</td>
<td>War and American Society in the Twentieth Century</td>
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<tr>
<td>MGMT 325</td>
<td>Contemporary Organizations and Management</td>
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<tr>
<td>MGMT 340</td>
<td>Human Resources Management</td>
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<tr>
<td>NURS 480W</td>
<td>Nursing in the Health Care System: Leadership</td>
</tr>
<tr>
<td>PHIL 441</td>
<td>Foundations of Ethics</td>
</tr>
<tr>
<td>PHIL 442E</td>
<td>Studies in Applied Ethics</td>
</tr>
<tr>
<td>POLS 326W</td>
<td>American Foreign Policy</td>
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<tr>
<td>POLS 327W</td>
<td>Politics of National Security</td>
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<td>POLS 350T</td>
<td>Technology and War</td>
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<tr>
<td>POLS 421</td>
<td>International Law</td>
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<tr>
<td>PSYC 343</td>
<td>Personnel Psychology</td>
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<td>PSYC 345</td>
<td>Organizational Psychology</td>
</tr>
<tr>
<td>SOC 352</td>
<td>War and Peace</td>
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Total Hours 15

For completion of a minor, a student must have a minimum overall cumulative grade point average of 2.00 in all courses required for the minor exclusive of lower-level courses and prerequisite courses and complete a minimum of six hours in upper-level courses in the minor requirement through courses offered by Old Dominion University.

For more information contact the Department of Naval Science at (757) 683-4741 or visit the web site: http://www.odu.edu/nrotc.
NAVAL SCIENCE Courses

NAVS 101. Introduction to Naval Science. 2 Credits.
General introduction to the naval service. Particular emphasis placed on the mission, organization, regulations and broad warfare components of the Navy and Marine Corps. Includes customs, discipline, courtesies, leadership, core values and shipboard nomenclatures.

NAVS 102. Naval Sea Power. 3 Credits.
The study of the evolution of the major world naval and maritime nations. The role of American naval and maritime affairs in the rivalries of the great world powers during the colonial period, the spread of revolutionary movements, and the era of civil and international conflicts in the 19th and 20th centuries.

NAVS 111+. Naval Laboratory I. 1 Credit.
Covers basic military formations, drills, commands, customs, courtesies, honors and inspections. Lecture and discussion topics include cruise preparation, safety education, administration, security, equal opportunity and military justice. First year Naval Science students only. Prerequisite: departmental permission.

NAVS 112+. Naval Laboratory I. 1 Credit.
Continues basic military formations, drills, commands, customs, courtesies, honors and inspections. Lecture and discussion topics include cruise preparation, safety education, administration, security, equal opportunity and military justice. First year Naval Science students only. Prerequisite: departmental permission.

NAVS 201. Naval Ships Systems I. 3 Credits.
Familiarizes students with types, structure and purpose of naval engineering systems, propulsion systems, auxiliary power systems, electrical systems and ship control. Ship design and stability characteristics are examined.

NAVS 202. Naval Ships Systems II. 3 Credits.
Introduction to theory and principles of operation of naval weapons systems. Covers types of weapons and fire control systems, capabilities/limitations, theory of target acquisition, identification and tracking, trajectory principles and basics of naval ordnance.

NAVS 211+. Naval Laboratory II. 1 Credit.
Covers military formations, drills, commands, customs, courtesies, honors and inspections. Lecture/discussion topics include cruise preparation/evaluation, security, administration and military justice. Second year Naval Science students only. Prerequisite: departmental permission.

NAVS 212+. Naval Laboratory II. 1 Credit.
Military formations, drills, commands, customs, courtesies, honors and inspections. Lecture and discussion topics include cruise preparation and evaluation, safety, administration, security, equal opportunity and military justice. Second year Naval Science students only. Prerequisite: departmental permission.

NAVS 301. Navigation and Naval Operations I. 3 Credits.
In-depth study of piloting including theory, principles and procedures. Includes use of charts, visual and electronic aids, and theory and operation of compasses. Other topics include tides, currents, effects of wind and weather, and nautical rules of the road. Prerequisite: departmental permission.

NAVS 302. Navigation and Naval Operations II. 3 Credits.
Relative motion vector-analysis theory, relative motion problems, formation tactics, and ship employment. Also includes an introduction to naval operations and operations analysis, ship behavior and characteristics in maneuvering, applied aspects of ship handling, and afloat communications. Concepts in naval leadership and naval operations reinforced through case studies. Prerequisite: departmental permission.

NAVS 310. Evolution of Warfare. 3 Credits.
Explores the basic concepts for understanding the operational art of warfare from the beginning of recorded history to the present. Prerequisite: departmental permission.

NAVS 311+. Naval Laboratory III. 1 Credit.
Military formations, drills, commands, customs, courtesies, honors and inspections. Lecture/discussion topics include cruise preparation and evaluation, security and military justice. Third year Naval Science students only. Prerequisite: departmental permission.

NAVS 312+. Naval Laboratory III. 1 Credit.
Military formations, drills, commands, customs, courtesies, honors and inspections. Lecture and discussion topics include cruise preparation and evaluation, safety, administration, security, equal opportunity and military justice. Third year Naval Science students only. Prerequisite: departmental permission.

NAVS 395. Topics. 3 Credits.
Study of selected topics. Prerequisite: departmental permission.

NAVS 401. Leadership and Management I. 3 Credits.
The fundamentals of the managerial process (planning, organization, directing, and controlling) are considered in their relationship to the effectiveness of naval organization and readiness. Coverage includes human resources management, naval personnel management, material management and administration of division discipline. Prerequisite: NROTC Junior or Senior Midshipman or STA-21/MECEP; departmental permission required for non-ROTC students.

NAVS 402. Leadership and Ethics. 3 Credits.
Capstone course, designed to equip the student with the critical thinking skills to address moral and ethical dilemmas frequently faced by naval officers. Prerequisite: completion of all previous NAVS courses.

NAVS 410. Fundamentals of Maneuver Warfare. 3 Credits.
Broad aspects of warfare and their interactions with maneuver warfare doctrine. Focus on the United States Marine Corps as the premier maneuver warfare fighting institution. Historical influences on current tactical, operational, and strategic implications of maneuver warfare practices. Case studies. Enrollment preference to NROTC students. Prerequisites: departmental permission.

NAVS 411+. Naval Laboratory IV. 1 Credit.
Covers military formations, drills, commands, customs, courtesies, honors and inspections. Lecture/discussion topics include precommissioning preparation, administration, equal opportunity, safety and military justice. Fourth year Naval Science students only. Prerequisite: departmental permission.

NAVS 412+. Naval Laboratory IV. 1 Credit.
Military formations, drills, commands, customs, courtesies, honors and inspections. Lecture and discussion topics include precommissioning preparation, safety, administration, security, equal opportunity and military justice. Fourth year Naval Science students only. Prerequisite: departmental permission.