

# The School of Science and Engineering

## ROTC

### Naval Science (Navy)

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The Naval ROTC curriculum leads to commissions in the U.S. Naval Reserve or U.S. Marine Corps Reserve. Candidates for commissions in the Naval Reserve are required to complete Naval Science 101, 102, 200, 201, 301, 302, 401, and 402. Candidates for commission in the Marine Corps Reserve take Naval Science 101, 102, 200, 303, 402, and 403. Up to 15 credits of naval science course work may be counted in the credits required for graduation.

In addition to required naval science courses, all Navy-option scholarship students must complete two semesters each in calculus prior to completion of their sophomore year and calculus-based physics prior to completion of their junior year. All NROTC students attend naval science laboratories at 7 a.m. Thursday. Non-NROTC students may be admitted to any of the naval science courses.

#### NAVS 101 Introduction to Naval Science (3)

Staff. A general introduction to the Navy and Marine Corps. The instruction places particular emphasis on the mission, organization,

regulations, and broad warfare components of the Navy. Included is an overview of officer and enlisted rank and rating structures, the basic tenets of naval courtesy and customs, discipline, Navy Core Values, naval leadership, and ship's nomenclature. The course also provides a conceptual framework/working vocabulary for NROTC students to use on Summer Cruise. The student is made cognizant of the major challenges facing today's naval officer.

#### NAVS 102 Seapower and Maritime Affairs (3)

Staff. Designed to develop the student's knowledge and interest in sea power and maritime affairs, this course is oriented towards the influence of sea power upon history and the implementation of sea power as an instrument of national policy. The survey begins with the age of galley warfare and concludes with an analysis of current military operations.

#### NAVS 106 NROTC Leadership Laboratory (0)

Staff. Laboratory for 101, 200, 301, and 401.

#### NAVS 200 Leadership and Management (3)

Staff. Comprehensive study of organizational behavior and management. Topics include survey of management functions of planning, organizing, and controlling; an introduction to individual/group behavior in organizations; and extensive study of motivation/leadership. Major behavior theories explored in detail. Practical applications explored through using experiential exercises, case studies, and laboratory discussions. Other topics include decision making, communication, responsibility, authority, accountability, and total quality leadership.

#### NAVS 201 Naval Ships Systems I (3)

An introduction to naval engineering with emphasis on the equipment and machinery involved in the conversion of energy for propulsion and other purposes aboard the major ship types of the U.S. fleet. Basic concepts of the theory and design of steam, gas turbine, diesel and nuclear propulsion. Introduction to ship design, stability, hydrodynamic forces, compartmentation, electrical and auxiliary systems.

#### NAVS 301 Navigation (3)

Staff. A comprehensive study designed to introduce the theory and practical applications of marine navigation. Topics include an understanding of the marine environment, terrestrial and celestial navigation theory, navigational equipment, visual navigation aids,

nautical charts and publications, and electronic navigation theory. Relative motion and vector analysis are also introduced.

**NAVS 302 Navigation II (3)**

Staff. A comprehensive study of relative motion, vector-analysis theory, formation tactics, and ship employment. Also included are introductions to naval operations and operations analysis, ships behavior and characteristics in maneuvering, applied aspects of shiphandling, afloat communications, and command and control.

**NAVS 303 Evolution of Warfare (3)**

Staff. This course traces the development of warfare from the dawn of recorded history to present, focusing on the impact of major military theorists, strategists, tacticians, and technological developments. Students acquire a basic sense of strategy, develop an understanding of military alternatives, and see the impact of historical precedence on military thought and actions. This course concludes with a review of the various modern warfare concepts and principles outlined in the National Command Authorities Joint Vision 2010, and briefly explores the future of armed conflict.

**NAVS 401 Naval Ships Systems II (3)**

Staff. This course provides an introduction to theory and principles of operation of naval weapons systems. It includes coverage of types of weapons and fire control systems, capabilities and limitations, theory of target acquisition, identification and tracking, trajectory principles, and basics of naval ordinance.

**NAVS 402 Leadership and Ethics (3)**

Staff. Completes final preparations of NROTC ensigns/2nd Lieutenants for their first fleet assignments as division officers or platoon commanders. Topics of discussion include: military leadership, values/professional ethics; the Uniform code of Military Justice and Navy regulations emphasizing Navy/Marine Corps junior officer's typical application of law; and separate discussions of Navy and Marine Corps personnel policies and practices relating to the roles of enlisted members, junior and senior officers, personnel counseling, evaluation, advancement, career planning, personal finances, drug and alcohol abuse, fraternization and sexual harassment, and reporting aboard to their first command.

**NAVS 403 Amphibious Warfare (3)**

Staff. This course surveys the historical development of amphibious doctrine and the conduct of amphibious operations. Emphasis is placed on the evolution of amphibious warfare in the

20th century, especially during World War II. The course explores present day capabilities, limitations, and force structure of current amphibious forces, and establishes a foundation for understanding the future of littoral warfare.