

# Naval Science



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The purpose of the Naval Science program is to provide college students desiring to become Naval or Marine Corps Reserve officers a basic professional background in the areas of leadership, ethics, and management; piloting and celestial navigation; nautical rules of the road; ship characteristics, design, and propulsion; theory and employment of weapon systems; and development of warfare and amphibious operations. This curriculum is open to all University students. A graduate will be able to assume, through development of mind and character, the highest responsibilities of command, citizenship, and government.

## **PROGRAM OBJECTIVES**

The primary objectives of the Naval Science Department curriculum are to provide:

1. An understanding of the fundamental concepts and principles of Naval Science;
2. A basic understanding of associated professional knowledge;
3. An appreciation of the requirements for national security;
4. A strong sense of personal integrity, honor, and individual responsibility; and,
5. An educational background which will allow Naval Science students to undertake successfully, in later periods in their careers, advanced/continuing education in a field of application and interest to the Navy or Marine Corps.

**COURSES (NAVS)****101 Introduction to Naval Science (0)**

A general introduction to the naval profession and to concepts of seapower. Instruction emphasizes the mission, organization, and warfare components of the Navy and Marine Corps. Included is an overview of officer and enlisted ranks, training and education, and career patterns. The course also covers ethics, basic leadership skills, naval courtesies and customs, military justice, and nomenclature. This course exposes the student to the professional competencies required to become a naval officer. *Note:* This is a non-credit course.

**102 Seapower (3)**

A historical survey of United States naval history from the American Revolution to the present with emphasis on major developments. The course also treats present-day concerns in seapower and maritime affairs including the economic and political issues of merchant marine commerce, the law of the sea, and a comparison of United States and other foreign naval strategies. Each era covered will be analyzed by evaluating the significance of the following: 1) strategy and tactics, 2) leadership, 3) technological advancements, 4) inter-service relations, 5) naval doctrine, 6) foreign policy, and 7) Congressional relations.

**201 Leadership and Management (3)**

The theme of the course is the “Naval officer as a leader, manager, and organizational decision maker.” The course will begin with modules on ethics and integrity, progress through management theory and practical functions of management, and culminate with a module on leadership. Lectures, reading assignments, films, discussions, exercises, interviews, and student presentations provide students with an excellent opportunity to wrestle with complex ethical, managerial, and leadership issues. The goal of this course is for students to begin to develop a sound personal leadership philosophy that will enable them to more effectively accomplish both personal and professional goals.

**202 Naval Engineering (3)**

A detailed study of ship characteristics and types including hull, electrical, and auxiliary systems. Principles of stability and damage control are also covered. Advantages and disadvantages of steam, gas turbine, and diesel propulsion engines and their operation receive in-depth study. Leadership topics as they apply in an engineering setting are discussed.

**301 Navigation I (3)**

An in-depth study in the theory, principles, and procedures of ship navigation and maneuvering. Students learn piloting, navigation, and maneuvering to include the use of charts, visual and electronic aids, theory and operation of magnetic and gyro compasses, relative-motion vector analysis theory, formation tactics, and ship employment.

Practical skills in plotting and piloting are stressed. Other topics include tides, currents, effects of wind and weather, use of navigation instruments, celestial navigation, and the characteristics of electronic navigation.

**302 Navigation II (3)**

A study of the international and inland rules of the nautical road, naval operations and operations analysis, applied aspects of ship handling, and afloat communications. This course incorporates a variety of case analyses to stress practical application of skills. Additionally, leadership traits in the themes of communication, counseling, and conflict resolution as they relate to safe navigation and ship movement will be developed.

**310 Evolution of Warfare (3)**

This course traces the development of warfare from the dawn of recorded history to the present, focusing on the impact of major military theorists, strategists, tacticians, and technological developments. The student acquires a basic sense of strategy, develops an understanding of military alternatives, and sees the impact of historical precedent on military thought and actions.

**401 Naval Weapons (3)**

This course outlines the theory and employment of naval weapons systems. Topics of discussion include radars, gun and missile systems, underwater direction and tracking, and basic naval ordinance. Case studies of weapon systems employment are covered, with emphasis on accountability and responsibility of the naval leader.

**402 Leadership and Ethics (3)**

Leadership and Ethics is the capstone course of the NROTC academic curriculum and was previously intended to provide senior midshipmen and officer candidates with some of the tools necessary to be effective junior officers. We have shifted the emphasis towards values and the ethical foundations of leadership. Philosophical interpretation and dialog will be used extensively throughout the course. The course is organized into three modules of study. The first module is about ethical foundations. The second module explores military law and legal issues. The third module presents some specific topics related to junior Navy and Marine officer development. *Recommend taking Naval Science 201 – Leadership and Management prior to this course.*

**410 Amphibious Operations (3)**

A historical survey of the 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. Present-day potential and limitations on amphibious operations, including the rapid Marine air-ground task force concept, are explored.