

# Naval Science (NAV SCI)

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## Courses

### NAV SCI 1 Introduction to Naval Science 2 Units

This curriculum provides guidelines for introducing students to the organization of the Department of Defense and the naval service, the long-held customs and traditions of the service, basic leadership, ethics and character development, the duties of a junior officer, and basic information concerning shipboard procedures and safety. It is the intent of this course to stimulate the students' interest for study and investigation in future courses.

#### Hours & Format

**Summer:** 10 weeks - 3 hours of lecture and 3 hours of lecture per week

#### Additional Details

**Subject/Course Level:** Naval Science/Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

### NAV SCI 2 Sea Power and Maritime Affairs 2 Units

Traces the U.S. historical evolution of sea power, its concepts, theories and applications. Emphasizes the impact of world situation, U.S. national interest, changing technology, and naval leadership on the evolving concept of sea power. Relates historical developments to current trends. Examines briefly the U.S. Merchant Marine's and the former Soviet Navy's impact on sea power policy formulation.

#### Rules & Requirements

**Prerequisites:** Consent of instructor

#### Hours & Format

**Fall and/or spring:** 15 weeks - 2 hours of lecture per week

**Summer:** 10 weeks - 3 hours of lecture per week

#### Additional Details

**Subject/Course Level:** Naval Science/Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

### NAV SCI 3 Leadership and Management I 3 Units

This course will cover basic management, decision making, and moral leadership. The student will learn to establish meaningful goals, prioritize among competing demands, and plan and forecast in a task-centered organization. The course includes exposure to measures of organizational effectiveness, methods to overcome resistance to change, effective communications, and techniques to aid in counseling, team building, and resolution of disciplinary and personnel matters.

#### Hours & Format

**Fall and/or spring:** 10 weeks - 3 hours of lecture per week

#### Additional Details

**Subject/Course Level:** Naval Science/Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

### NAV SCI 10 Naval Ship Systems I 3 Units

Principles of design and operation of ships. Emphasis on description and analysis of major types of propulsion plants, both conventional and nuclear. Principles of thermodynamic cycles, electrical theory, power generation and distribution, auxiliary machinery systems. Ship construction, strength and stability in intact and damaged conditions. Factors and design criteria for seaworthiness, structural integrity, and operational employment.

#### Rules & Requirements

**Prerequisites:** Mathematics 1A or 16A

**Repeat rules:** Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes.

#### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture per week

#### Additional Details

**Subject/Course Level:** Naval Science/Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

### NAV SCI 12A Navigation and Naval Operations I 3 Units

Theory, principles, and procedures of terrestrial and celestial navigation and piloting techniques. A study of coordinating systems, including the celestial coordinate system, nautical charts and publications, position fixing, dead reckoning, nautical astronomy, the theory and methods of celestial navigation, and the theory and prediction of tides and current.

#### Hours & Format

**Fall and/or spring:** 10 weeks - 3 hours of lecture and 1 hour of laboratory per week

#### Additional Details

**Subject/Course Level:** Naval Science/Undergraduate

**Grading/Final exam status:** Letter grade. Final exam not required.

### NAV SCI 12B Navigation and Naval Operations II 3 Units

Introduction to the various aspects of ship operations at sea. Principles of terrestrial navigation including the rules of the road for prevention of collisions at sea, vector analysis of relative motion, ship behavior and characteristics in maneuvering, precise ship positioning, use of aids to navigation, meteorology, and electronic navigation.

#### Rules & Requirements

**Prerequisites:** 12A or consent of instructor

#### Hours & Format

**Fall and/or spring:** 15 weeks - 3 hours of lecture and 1 hour of laboratory per week

#### Additional Details

**Subject/Course Level:** Naval Science/Undergraduate

**Grading/Final exam status:** Letter grade. Final exam required.

**NAV SCI 400A Naval Laboratory 0.0 Units**

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

**Rules & Requirements**

**Prerequisites:** Consent of instructor

**Hours & Format**

**Fall and/or spring:** 15 weeks - 3 hours of laboratory per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Offered for pass/not pass grade only.

**NAV SCI 400B Naval Laboratory 0.0 Units**

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

**Rules & Requirements**

**Prerequisites:** Consent of instructor

**Hours & Format**

**Fall and/or spring:** 15 weeks - 3 hours of laboratory per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Offered for pass/not pass grade only.

**NAV SCI 400C Naval Laboratory 0.0 Units**

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

**Rules & Requirements**

**Prerequisites:** Consent of instructor

**Hours & Format**

**Fall and/or spring:** 15 weeks - 3 hours of laboratory per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Offered for pass/not pass grade only.

**Instructor:** Broihier**NAV SCI 400D Naval Laboratory 0.0 Units**

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

**Rules & Requirements**

**Prerequisites:** Consent of instructor

**Hours & Format**

**Fall and/or spring:** 15 weeks - 3 hours of laboratory per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Offered for pass/not pass grade only.

**NAV SCI 400E Naval Laboratory 0.0 Units**

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

**Rules & Requirements**

**Prerequisites:** Consent of instructor

**Hours & Format**

**Fall and/or spring:** 15 weeks - 3 hours of laboratory per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Offered for pass/not pass grade only.

**NAV SCI 401 Naval Ship Systems II 3 Units**

An introduction to the physical theory of acoustic and electromagnetic wave generation and propagation; the design and use of electronic, electromechanical, and pneumatic systems; and the combination of these systems to perform detection and analysis of objects sharing and traversing common environments.

**Hours & Format**

**Fall and/or spring:** 10 weeks - 3 hours of lecture per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Letter grade.

**NAV SCI 412 Leadership and Ethics 3 Units**

This course is the capstone leadership course. It is intended to provide the ethical foundation and tools required for success as a leader of a diverse work force, often under circumstances of substantial stress. The course is divided between the art of leadership and the technical aspects of integrating personnel development with the management of resources, although the emphasis is on leadership. It is designed to be given as a seminar or lecture/discussion in which principles, concepts, and concrete subjects are presented, discussed, and debated.

**Rules & Requirements**

**Prerequisites:** Consent of instructor

**Hours & Format**

**Fall and/or spring:** 15 weeks - 3 hours of lecture per week

**Additional Details**

**Subject/Course Level:** Naval Science/Other professional

**Grading:** Letter grade.