

## NAVAL SCIENCE (NS)

ROTC subjects do not carry academic credit at MIT, but they can be counted toward the PE requirement. Up to two points per year with a maximum of four points.

### Naval Science

#### NS.100 Naval Science Leadership Seminar

Subject meets with NS.200, NS.300, NS.400

Prereq: None

U (Fall, Spring)

0-2-2 units

Leadership seminar addresses professional issues of military leadership, ethics, foreign policy, internal affairs and naval warfare doctrine. Subject matter centers on preparation for commissioned service in the US Naval Forces by examining the role of the junior officer in the employment of naval power. Mostly student originated, the periods include panel discussions, practical applications, guest lecturers from academia, and speakers currently serving in deployed naval forces.

*B. Connors*

#### NS.11 Introduction to Naval Science

Prereq: None

U (Fall)

3-0-3 units

Introduction to naval science. General introduction to the US Navy and Marine Corps. Emphasizes organizational structure, warfare components, and assigned roles/missions of US Navy/USMC. Covers all aspects of naval service from its relative position within DOD, to specific warfare communities/career paths. Also includes basic elements of leadership/Navy core values. Designed to give student initial exposure to many elements of naval culture. Provides students with conceptual framework and working vocabulary. Completion of MIT NROTC Orientation Program strongly recommended.

*A. Francher*

#### NS.12 Seapower and Maritime Affairs

Prereq: None

U (Spring)

3-0-6 units

A study of the US Navy and the influence of sea power upon history. Incorporates both a historical and political science process to explore the major events, attitudes, personalities, and circumstances which have imbued the US Navy with its proud history and rich tradition. Deals with issues of national imperatives in peacetime as well as war, varying maritime philosophies which were interpreted into naval strategies/doctrines, budgetary concerns which shaped force realities, and the pursuit of American diplomatic objectives, concluding with the current search for direction in the post-Cold War era and beyond.

*A. Francher*

#### NS.200 Naval Science Leadership Seminar

Subject meets with NS.100, NS.300, NS.400

Prereq: None

U (Fall, Spring)

0-2-2 units

Leadership seminar addresses professional issues of military leadership, ethics, foreign policy, internal affairs and naval warfare doctrine. Subject matter centers on preparation for commissioned service in the US Naval Forces by examining the role of the junior officer in the employment of naval power. Mostly student originated, the periods include panel discussions, practical applications, guest lecturers from academia, and speakers currently serving in deployed naval forces.

*B. Connors*

#### NS.21 Leadership and Management

Prereq: None

U (Fall)

3-0-6 units

Explores leadership from the military perspective taught by professors of military science from the Army, Navy and Air Force. Survey of basic principles for successfully managing and leading people, particularly in public service and the military. Develops skills in topics such as oral and written communication techniques, planning, team building, motivation, ethics, decision-making, and managing change. Relies heavily on interactive experiential classes with case studies, student presentations, role plays, and discussion. Also appropriate for non-management science majors.

*J. Huck*

### **NS.22 Navigation**

Prereq: NS.11 or permission of instructor

U (Spring)

3-0-6 units

Comprehensive study of the theory, principles, and procedures of piloting and maritime navigation, including mathematics of navigation, practical work involving navigational instruments, sight reduction by *pro forma* and computerized methods, charts, publications, and voyage planning. CORTRAMID cruise recommended.

*J. Nothacker*

### **NS.300 Naval Science Leadership Seminar**

Subject meets with NS.100, NS.200, NS.400

Prereq: None

U (Fall, Spring)

0-2-4 units

Leadership seminar addresses professional issues of military leadership, ethics, foreign policy, internal affairs and naval warfare doctrine. Subject matter centers on preparation for commissioned service in the US Naval Forces by examining the role of the junior officer in the employment of naval power. Mostly student originated, the periods include panel discussions, practical applications, guest lecturers from academia, and speakers currently serving in deployed naval forces.

*B. Connors*

### **NS.31 Naval Ships Systems I: Engineering**

Prereq: None

U (Fall)

3-0-6 units

Lecture series on technological fundamentals of applied and planned naval ships Systems from an engineering viewpoint. Topics include stability, propulsion, ship control and systems.

*J. Stabile*

### **NS.32 Naval Ship Systems II Weapons**

Prereq: NS.31 or permission of instructor

U (Spring)

3-0-6 units

Overview of the properties and behavior of electromagnetic radiation pertaining to maritime applications. Topics include communications, radar detection, electro-optics, tracking and guidance systems. Sonar and underwater sound propagation also discussed. Examples taken from systems found on naval ships and aircraft. Selected readings on naval weapons and fire control systems. Physics I (GIR) and Calculus II (GIR) recommended.

*J. Stabile*

### **NS.33 Evolution of Warfare**

Prereq: None

Acad Year 2023-2024: U (Spring)

Acad Year 2024-2025: Not offered

3-0-6 units

Traces development of warfare from dawn of recorded history to present, focusing on the impact of major military theorists, strategists, tacticians, and technological developments. Seeks to understand the relationships between military training, weaponry, strategies and tactics, and the societies and cultures that produce and then are defended by those military structures. By examining the association between a society and its military, students acquire basic sense of strategy, develop an understanding of military alternatives, and see the impact of historical precedents on military thoughts and actions.

*J. Garland*

### **NS.400 Naval Science Leadership Seminar**

Subject meets with NS.100, NS.200, NS.300

Prereq: None

U (Fall, Spring)

0-2-4 units

Leadership seminar addresses professional issues of military leadership, ethics, foreign policy, internal affairs and naval warfare doctrine. Subject matter centers on preparation for commissioned service in the US Naval Forces by examining the role of the junior officer in the employment of naval power. Mostly student originated, the periods include panel discussions, practical applications, guest lecturers from academia, and speakers currently serving in deployed naval forces.

*B. Connors*

### **NS.41 Navigation and Naval Operations**

Prereq: NS.22 or permission of instructor

U (Fall)

3-0-6 units

Comprehensive study of tactical and strategic considerations to the employment of naval forces, including communications, tactical formations and dispositions, relative motion, maneuvering board, and nautical rules of the road.

*J. Nothacker*

**NS.42 Leadership and Ethics**

Prereq: NS.21

U (Spring)

3-0-6 units

Analyzes ethical decision-making and leadership principles. Students read and discuss texts written by such philosophers as Aristotle, Kant, and Mill to gain familiarity with the realm of ethical theory. Students then move on to case studies in which they apply these theories to resolve moral dilemmas. Provides a basic background in the duties and responsibilities of a junior division and watch officer; strong emphasis on the junior officer's responsibilities in training, counseling, and career development. Student familiarization with equal opportunity and drug/alcohol rehabilitation programs. Principles of leadership reinforced through leadership case studies.

*J. Houdeshell***NS.43 Fundamentals of Maneuver Warfare**

Prereq: None

Acad Year 2023-2024: Not offered

Acad Year 2024-2025: U (Spring)

3-0-6 units

Introduces the United States Marine Corps' historical operating concepts as well as the employment of current doctrine known as "maneuver warfare." Utilizes historical examples from past military campaigns, as well as the current Marine Corps' doctrine and philosophy, to increase the student's critical thinking and decision-making ability. Aims to create future leaders capable of identifying and solving complex problems in future operating environments across the spectrum of conflict. Module one outlines the fundamental concepts, themes, and historical conflicts involving and relating to maneuver warfare. Module two articulates and describes the Marine Corps' current warfighting doctrine. Module three describes the Marine Corps' future operating concept and advancement of warfighting doctrine.

*B. Connors*