Students may enroll in the Naval Reserve Officers’ Training Corps (NROTC) program as scholarship or non-scholarship students. An academic minor in Naval Science is also available to all Rice students in undergraduate degree-granting programs. The faculty and instructors in the program consist of active-duty military officers.

**Minor**
- Minor in Naval Science (ga.rice.edu/programs-study/departments-programs/interdisciplinary/naval-science/naval-science-minor)

Naval Science does not currently offer an academic program at the graduate level.

**Chair and Professor in the Practice**
Timothy E. Symons, USN

**Advisors**
Joseph E. Elseroad, USMC
Kurtt Muffoletto, USN

**Adjunct Professors in the Practice**
Joseph E. Elseroad, USMC
Raymond Fernandez Jr., USMC
Kurtt Muffoletto, USN

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**Naval Science (NAVA)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Department</th>
<th>Grade Mode</th>
<th>Course Type</th>
<th>Credit Hours</th>
<th>Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAVA 101</td>
<td>NAVAL ORIENTATION</td>
<td>Naval Science</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>Course Level: Undergraduate Lower-Level</td>
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<td></td>
<td>Description: An introduction to naval traditions and customs, seamanship, naval organization and missions, and the fundamental concepts of sea power.</td>
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<tr>
<td>NAVA 103</td>
<td>SEA POWER AND MARITIME AFFAIRS</td>
<td>Naval Science</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>Description: Readings, discussions, and research on selected topics related to the history, importance, and impact of sea power on modern civilization.</td>
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<tr>
<td>NAVA 203</td>
<td>LEADERSHIP AND MANAGEMENT I</td>
<td>Naval Science</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>Course Level: Undergraduate Lower-Level</td>
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<td>Description: An introduction to the principles and concepts of management, organization, leadership, information systems, and decision making.</td>
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<tr>
<td>NAVA 238</td>
<td>SPECIAL TOPICS</td>
<td>Naval Science</td>
<td>Standard Letter</td>
<td>Seminar, Lecture, Laboratory, Internship/Practicum</td>
<td>1-4</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>Course Level: Undergraduate Lower-Level</td>
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<td>Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.</td>
</tr>
<tr>
<td>NAVA 301</td>
<td>NAVIGATION I</td>
<td>Naval Science</td>
<td>Standard Letter</td>
<td>Lecture/Laboratory</td>
<td>3</td>
<td>Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.</td>
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<td>Course Level: Undergraduate Upper-Level</td>
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<td>Description: Marine navigators and laws of vessel operations. Includes coastal piloting, navigational aids, nautical astronomy, satellite and inertial systems, and rules of the nautical road.</td>
</tr>
</tbody>
</table>
NAVA 302 - NAVAL OPERATIONS AND SEAMANSHIP
Short Title: NAVAL OPERATIONS & SEAMANSHIP
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: An analysis of ship movements, formations, and fleet operations; includes Rules of the Road, maneuvering board, tactical publications and communications.

NAVA 303 - EVOLUTION OF WARFARE
Short Title: EVOLUTION OF WARFARE
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Historical survey of the evolution of the conduct of warfare. Strategy, tactics, weapons, organization, and military leaders/thinkers are studied. Course is taught in the NROTC Building.

NAVA 304 - NAVAL WEAPONS-NAVAL SHIP SYSTEMS II
Short Title: NAVAL WEAPONS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: The theory and employment of weapons systems. The student explores the processes of detection, evaluation, threat analysis, weapon selection, delivery, guidance, and explosives. The physical aspects of radar and underwater sound are described in detail.

NAVA 402 - LEADERSHIP AND ETHICS
Short Title: LEADERSHIP AND ETHICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Leadership principles, with particular emphasis on ethics, human resources management, military law and discipline, and administration. The Capstone course for NROTC seniors. Recommended prerequisite(s): NAVA 203

NAVA 403 - NAVAL ENGINEERING
Short Title: NAVAL ENGINEERING
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture/Laboratory
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Ship propulsion systems, auxiliary systems, steering systems, electrical power distribution, ship design, ship stability and damage control measures.

NAVA 411 - FUNDAMENTALS OF MANEUVER WARFARE
Short Title: FUND OF MANEUVER WARFARE
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Lecture
Credit Hours: 3
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Mutually Exclusive: Credit cannot be earned for NAVA 411 and NAVA 410.

NAVA 477 - SPECIAL TOPICS
Short Title: SPECIAL TOPICS
Department: Naval Science
Grade Mode: Standard Letter
Course Type: Internship/Practicum, Lecture, Seminar, Laboratory
Credit Hours: 1-4
Restrictions: Enrollment is limited to Undergraduate, Undergraduate Professional or Visiting Undergraduate level students.
Course Level: Undergraduate Upper-Level
Description: Topics and credit hours may vary each semester. Contact department for current semester’s topic(s). Repeatable for Credit.

Description and Code Legend
Note: Internally, the university uses the following descriptions, codes, and abbreviations for this academic program. The following is a quick reference:

Course Catalog/Schedule
• Course offerings/subject code: NAVA

Program Description and Code
• Naval Science: NAVA

Undergraduate Minor Description and Code
• Minor in Naval Science: NAVA

CIP Code and Description
• NAVA Minor: CIP Code/Title: 28.0505 - Naval Science and Operational Studies

1 Classification of Instructional Programs (CIP) 2010 Codes and Descriptions from the National Center for Education Statistics: https://nces.ed.gov/ipeds/cipcode/