Where Science Meets the Art of Warfare
The Challenge

Capability = People + Technology
MISSION

Provide defense-focused graduate education, including classified studies and interdisciplinary research, to advance the operational effectiveness, technological leadership and warfighting advantage of the Naval service.
Who we are

We are who we serve:

NPS is a Naval command and a defense graduate university. We are military leaders, defense-expert educators and staff serving those who serve our nation.

What we do

Defense education & research:

NPS develops warrior talent and research solutions through Master’s and Ph.D. programs for the Department of the Navy, DoD, U.S. Government, partners and our allies.

Why it matters

For decisive advantage:

NPS ensures the technological leadership of the future force. Our graduates have the technical and intellectual edge to deter and prevail in the all-domain battlespace.
Where science meets the art of warfare...

- **NPS transforms leaders who will transform warfighting.** Electrical engineering alumnus Marine Corps Maj. Michael Wade studied high-electron mobility transistors for his thesis and directly applied his research to USMC radar systems, including the counter UAS, Light Marine Air Defense Integrated System (LMADIS).

- **Industry partnerships bring emerging technology to campus.** Xerox chose NPS to install its first liquid metal 3D printer, the ElemX, to collaborate on shipboard use cases through students-faculty research. The NPS-Xerox team and CNSP will install the second ElemX aboard USS TRIPOLI (LHA-7).

- **Relevant research delivers solutions.** LCDR Austin West was selected for the “Rear Admiral William S. Parsons Award for Scientific and Technical Progress” for his thesis research on compensating for air turbulence on the High Energy Laser Weapon System (HELWS), delivering tactical decision aids and fire control guidance.
Our students are the top priority

Operationally experienced students apply their academics to solve real operational problems.

- ~2,500 resident and distance students, many with combat experience (~13k more through certificates, workshops, and Exec Ed)
- Ever-refreshed, students bring real-time recognition of needs/threats
- Student research co-discovers and disseminates new knowledge
- Graduates apply their solutions and learning upon returning to the Fleet
Deep faculty expertise in defense matters

Defense-focused faculty provide deep intellectual capital applied to Naval missions, functions and tasks

- Active recruiting from top Ph.D. programs
- Diverse mix of tenured, research, instructional, and military faculty
- Military faculty possess academic credentials and operational expertise
- Graduate instruction integrates teaching with research
- Develops cutting-edge technology solutions and relevant applications

Faculty Highlights

587 Civilian Faculty
- 200 tenure or tenure-track (100% with doctorates)
- 358 non tenure-track

33 Military Faculty

Academic Leaders
196 NPS faculty earned their highest degree from one of the nation’s top 50 universities.

336,625 Google Scholar citations

$100 million generated for Research projects

Cutting edge technology
10-20 patents granted every year

(AY2021/QTR 1)
The NPS difference

Only NPS synchronizes student *operational experience* and *graduate education* with *applied research* and *faculty expertise*, to deliver twice the return on investment:

Relevant warfighting **solutions**...  
...and **leaders** educated to employ them.

- NPS is **Responsive** to operational needs through tailored education and research.
- NPS complements the Naval research community through **Interdisciplinary** education and **Applied** research producing **Innovative** solutions to relevant problems.
- NPS offers **Classified** coursework and research in controlled laboratories on our **Secure** campus.
Responsive: to the needs of the Fleet/Force

Program and curricular reviews ensure NPS meets the current and emerging needs of operational forces.

- Curriculum reviews with direct participation by flag officer sponsors.
- Detailed reviews scrutinize educational deliverables.
- Curricular educational outcomes match Fleet sponsors’ input.
- Naval leaders demand responsiveness and ongoing relevance.
- Seasoned Warfare Chairs infuse operational relevance at every level.
Interdisciplinary: solutions aligned to priorities

**PROBLEM SOLVING**

- **Decision Sciences**
  - Ops Analysis
  - Contracting, Acquisition
  - Wargaming, Simulations
  - Resource Management
  - OR, DM, MOVES
  - **TF Sea Control**

- **Weapons, Platforms**
  - Autonomous Systems
  - Material Science
  - Systems Integration
  - Undersea Domain
  - Physics, Mech Eng, Sys Eng, ECE
  - **TF Hybrid Fleet 2045**

- **Decision Sciences**
  - Ops Analysis
  - Contracting, Acquisition
  - Wargaming, Simulations
  - Resource Management
  - OR, DM, MOVES, DRMI
  - **TF Blue-Green Integration**

- **Great Power Competition**
  - Regional Studies
  - Irregular Warfare
  - Information Warfare
  - DA, NSA
  - **TF Maritime Gray Zone**

- **Cyber and Info Science**
  - Cyber and Info Systems
  - Electronic Warfare
  - IS, CS, ECE, Physics
  - **TF OVERMATCH**

- **Meteorology**
  - Oceanography
  - Space Domain
  - Undersea Domain
  - METOC, Space, USW
  - **TF Arctic**

- **Interdisciplinary:** solutions aligned to priorities
Applied: 100% defense focused

A fully accredited, graduate university with expert defense faculty and relevant research programs

- Student focused... Transforming leaders to think critically and solve complex warfighting problems.
- Applied research... Delivering solutions through interdisciplinary curricula and relevant student-faculty research.
- A capability to optimize... Defense-relevant graduate degree programs, research and Exec-Ed combine to deliver operational outcomes.

Graduate Programs:

- Applied Mathematics
- Computer Science
- Cyber
- Defense Analysis
- Defense Management
- Electrical and Computer Engineering
- Energy
- Information Sciences
- Mechanical and Aerospace Engineering
- Meteorology
- National Security Affairs
- Oceanography
- Operations Research
- Physics
- Space Systems
- Systems Engineering
- Undersea Warfare
Innovative: a location to leverage

Proximity to the Silicon Valley, top research universities and labs creates dynamic opportunities for faculty and students.

- Internships give uniformed students experience at the speed of industry, insights into commercial best practices and technical breakthroughs.
- Ecosystem: Stanford, UC Berkeley, UCSC, Fleet Numerical Meteorology and Oceanography Center, Naval Research Laboratory, Defense Language Institute
- Open ocean ranges (Monterey Bay), One-of-a-Kind facilities (SLAMR) and full access to controlled airspace (Camp Roberts Field Lab)
Maintain the facilities, clearances and infrastructure to provide classified research and educational programs.

- Cyber Battle Lab / Electric Weapons Lab / NPS Field Labs / Prototyping
- Sensitive Compartmented Information Facility (SCIF) and the Systems Technology Battle Lab (STBL)
- Classified and secure collections in the Dudley Knox Library
- Opportunities to expand

NPS Mission Metrics

- Provides defense focused graduate education...
  - 68 graduate resident and distance learning programs in technical and engineering fields (2020 graduates: 305)
  - 32 graduate resident and distance learning programs in defense management and security studies (2020 graduates: 203)
  - 16,066 total student engagement (resident, distance, certificate, Exec-Ed)
  - 82 continuous learning, certificate, short courses, special seminars, METs (2020 454 participants)
  - Including classified and interdisciplinary research...
    - More than 1,000 research thesis and capstone projects delivered every year
    - In 2020 over 150 interdisciplinary education, research, and field experimentation programs executed
    - In 2020 30% of all sponsored research was approached with interdisciplinary teams
    - In 2020 over 120 classified/restricted research and education activities were conducted (25% of all sponsored research)
    - In 2021 60% of NPS Naval Research programs directly support CNO Key Operational Problems
Secure: on-base campus & labs

- 4 FLEX classrooms of the Future (reconfigurable)
- Cyber and Electric Weapons labs
- Adaptive Optics lab, a National Center of Excellence
- 3 Classified facilities (SCIF, STBL, Library)
- 12 Systems engineering labs (Robotics, M&S)
- 68 Mechanical & Aerospace labs (Autonomy, 3D printing)
- 9 Space Systems labs (CubeSats, Spacecraft robotics)
- 62 baseline classrooms and 4 Auditoria
The Business of NPS:

- NPS utilizes a **University Operating Model (UOM)** with reimbursable operations for education and research leverage in a resource-constrained environment.
- Reimbursable operations, while complex, deliver diverse grad-ed and research results.
- High value: Twice the school for half the price. ~$100m direct funding augmented by ~$100m from sponsored reimbursable education and research.
Advanced relevant education

Resident, Distance and Non-degree

Graduate Program Students
By Type of Enrollment

16,066
Total Engagement in AY2020

1,480 Resident Degree
866 Distance Degree
425 Certificate/Non-degree
13,295 EE/PD*

*EE/PD is Executive Education and Professional Development
Diverse by Design: educating our global partners

International Resident Degree Students – 48 countries

<table>
<thead>
<tr>
<th>Degree Students</th>
<th></th>
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<tbody>
<tr>
<td>Africa</td>
<td>5</td>
</tr>
<tr>
<td>Caribbean, Central &amp; South America</td>
<td>16</td>
</tr>
<tr>
<td>Central/East Asian &amp; Middle East</td>
<td>8</td>
</tr>
<tr>
<td>Europe</td>
<td>40</td>
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<tr>
<td>Far/Near East</td>
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<tr>
<td>Australia &amp; New Zealand</td>
<td>6</td>
</tr>
<tr>
<td>North America</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>126</strong></td>
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Data from AY2020.
Reaccredited in 2020 for max: 10-years

**WSCUC**  Western Association of Schools and Colleges  
Senior College and University Commission

- **ABET**  Accreditation Board for Engineering and Technology

- **NASPAA**  Network of Schools of Public Policy, Affairs, and Administration
Reimbursable Research Thrusts

Mission positive, budget neutral:
- Operational relevance through resource sponsors
- Faculty recruitment, retention & relevance with competitive proposals and peer-reviewed publications to maintain skillsets and expertise
- Leveraging reimbursables doubles the value of the NPS graduate education

Navy components sponsor about ½ of the research, but that’s not sufficient or comprehensive

Support from other govt agencies is also critical, especially in areas such as intel & unmanned systems
Research connects people, enables solutions

- Our ecosystem of research and facilities includes:
  - Consortium for Robotics and Unmanned Systems Education and Research (CRUSER)
  - Sea Land Air Military Research Initiative (SLAMR)
  - Joint Field Interagency Experimentation (JIFX)
  - Consortium for Intelligent Systems Education and Research (CISER)
  - MOVES (Modeling, Virtual Environments and Simulation) Institute
  - The Common Operational Research Environment (CORE) lab

- Additional expertise in: (see all: nps.edu/web/research/research-facilities)
  - Additive Manufacturing and Materials
  - Infrastructure Defense and Wargaming
  - Crew Endurance Defense and Human Systems Integration
  - AI/ML Data Science and Cyber Security/Operations
  - Spacecraft Research and Design
  - Directed Energy Weapons and Defense
  - Center for Executive Education

- NavalX Central Coast Tech Bridge connects to industry
In the Naval R&D Establishment (NR&DE)  

**NPS complements Naval Warfare Center R&D**

**65+ Joint Research Projects**

**Shared Learning**
Monthly Lectures by a NAVSEA Centers

**Workforce STEM**
many NRDE staff enrolled at NPS for degrees and certificates
A front door to NPS interdisciplinary education and research solutions.
A comparative and competitive advantage

Immediate Impact:
- 100% focused on the Naval mission and national security
- 1,000’s of research solutions from student-faculty applied research
- Graduates return to employ education for warfighting advantage

Future Advantage:
- University Operating Model delivers a $200M+ program for half the cost
- A nexus of world-class academia, research and innovation to draw upon
- Naval Warfare Studies Institute aligns and accelerates warfighting outcomes

Enduring Leadership:
- Executive, distance and continuing education ensures our edge stays sharp
- Reservoir of defense-focused faculty are irreplaceable intellectual capital
- Interservice, interagency and international campus builds lasting partnerships