**OCEAN ENGINEERING (PH.D.)**

https://ceps.unh.edu/ocean-engineering/program/phd/ocean-engineering

**Description**

Students admitted to the ocean engineering Ph.D. program come from traditional engineering degree programs including physics, mathematics, computer science, and in some cases, marine science programs. Those entering the Ph.D. program with a B.S. degree from an engineering program should be prepared to begin the Ph.D. program directly. Those coming from a B.S. in physics, mathematics, or computer science will have their transcripts more carefully reviewed on an individual basis, as additional courses may be required.

A student in the ocean engineering Ph.D. program will be expected to take a minimum of 12 courses (exclusive of dissertation research) beyond those required for a B.S. degree.

**Requirements**

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ESCI #850</td>
<td>Biological Oceanography</td>
<td>3-4</td>
</tr>
<tr>
<td>ESCI 852</td>
<td>Chemical Oceanography</td>
<td></td>
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<tr>
<td>ESCI 858</td>
<td>Introduction to Physical Oceanography</td>
<td></td>
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<tr>
<td>ESCI 859</td>
<td>Geological Oceanography</td>
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Select one of the following courses in oceanography or ocean science:

- ESCI 820: Ocean Measurements Lab
- OE 853: Ocean Hydrodynamics
- OE 854: Ocean Waves and Tides
- OE 864: Spectral Analysis of Geophysical Time Series Data
- OE 865: Underwater Acoustics

Complete the following core courses in ocean engineering:

- ESCI 820: Ocean Measurements Lab
- OE 853: Ocean Hydrodynamics
- OE 854: Ocean Waves and Tides
- OE 864: Spectral Analysis of Geophysical Time Series Data
- OE 865: Underwater Acoustics

Select two 900 level courses from the following list:

- ME 910: Turbulence
- OE 965: Advanced Underwater Acoustics
- OE 972: Hydrographic Field Course
- OE 995: Graduate Special Topics

Select two 800 or 900 level courses from MATH or IAM or select both:

- ME 886: Introduction to Finite Element Analysis
- ME 986: Advanced Finite Element Analysis

Select an additional four CEPS electives (two at the 800 level; two at the 900 level):

Areas essential to ocean engineering. A formal dissertation proposal defense will include a written proposal, a public presentation and an oral exam. After successful completion of the qualifying exam and dissertation proposal defense, the student will be advanced to candidacy. The dissertation will be defended in a public forum when completed.

The general progress of a student through this program is expected to follow the time frame listed:

**Year 1:** Coursework

**Year 2:** Coursework, qualifier by the end of the year, form graduate dissertation committee

**Year 3:** Research, dissertation proposal defense

**Year 4:** Research

**Year 5:** Research, dissertation defense

The course selection and sequencing will be established in consultation with the student’s guidance committee. There will be a qualifying examination on the core courses by the end of the second year. The goal of this exam is to test the breadth of a student’s knowledge in topic areas essential to ocean engineering.