Degree Requirements (128 hours)

Program of Study

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Carolina Core</td>
<td>34-46</td>
</tr>
<tr>
<td>2. College Requirements</td>
<td>15-18</td>
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<tr>
<td>3. Program Requirements</td>
<td>28-43</td>
</tr>
<tr>
<td>4. Major Requirements</td>
<td>36</td>
</tr>
</tbody>
</table>

Founding Documents Requirement
All undergraduate students must take a 3-credit course or its equivalent with a passing grade in the subject areas of History, Political Science, or African American Studies that covers the founding documents including the United State Constitution, the Declaration of Independence, the Emancipation Proclamation and one or more documents that are foundational to the African American Freedom struggle, and a minimum of five essays from the Federalist papers. This course may count as a requirement in any part of the program of study including the Carolina Core, the major, minor or cognate, or as a general elective. Courses that meet this requirement are listed here (https://academicbulletins.sc.edu/undergraduate/founding-document-courses/).

1. Carolina Core Requirements (34-46 hours)

CMW – Effective, Engaged, and Persuasive Communication: Written (6 hours)

must be passed with a grade of C or higher

- any CC-CMW courses (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

ARP – Analytical Reasoning and Problem Solving (8 hours)

must be passed with a grade of C or higher

- MATH 141
- MATH 142

SCI – Scientific Literacy (8 hours)

must be passed with a grade of C or higher

- MSCI 101
- MSCI 102

GFL – Global Citizenship and Multicultural Understanding: Foreign Language (0-6 hours)

Demonstration of proficiency in one foreign language equivalent to the minimal passing grade on the exit examination in the 122 course is required. Students can demonstrate this proficiency by successfully completing Phase II of the Proficiency Test or by successfully completing the 122 course, including the exit exam administered as part of that course.

- CC-GFL courses (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

It is strongly recommended that students continuing the study of a foreign language begin college-level study of that language in their first semester and
continue in that language until their particular foreign language requirement is completed.

GHS – Global Citizenship and Multicultural Understanding: Historical Thinking (3 hours)
- any CC-GHS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

GSS – Global Citizenship and Multicultural Understanding: Social Sciences (3 hours)
- any CC-GSS course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

AIU – Aesthetic and Interpretive Understanding (3 hours)
- any CC-AIU course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

CMS – Effective, Engaged, and Persuasive Communication: Spoken Component 1 (0-3 hours)
- any overlay or stand-alone CC-CMS (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

INF – Information Literacy 1 (0-3 hours)
- any overlay or stand-alone CC-INF course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

VSR – Values, Ethics, and Social Responsibility 1 (0-3 hours)
- any overlay or stand-alone CC-VSR course (https://academicbulletins.sc.edu/undergraduate/carolina-core-courses/)

1 Carolina Core Stand Alone or Overlay Eligible Requirements – Overlay-approved courses offer students the option of meeting two Carolina Core components in a single course. A maximum of two overlays is allowed. The total Carolina Core credit hours must add up to a minimum of 31 hours. Some programs may have a higher number of minimum Carolina Core hours due to specified requirements.

2. College Requirements (15-18 hours)
Foreign Language (0-3 hours)
- only if needed to meet 122-level proficiency

Analytical Reasoning (6 hours)

must be passed with a grade of C or higher

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 515</td>
<td>Statistical Methods I</td>
<td>3</td>
</tr>
<tr>
<td>Select one of the following:</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>CSCE 102</td>
<td>General Applications Programming</td>
<td></td>
</tr>
<tr>
<td>a higher level CSCE course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Credit Hours</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

History (3 hours)
The College of Arts and Sciences requires one additional GHS course beyond the Carolina Core GHS requirement.

- If the Carolina Core GHS requirement is fulfilled by a U.S. history course, the College of Arts and Sciences history requirement must be fulfilled by a non-U.S. history course.
- If the Carolina Core GHS requirement is fulfilled by a non-U.S. history course, the College of Arts and Sciences history requirement must be fulfilled by a U.S. history course.

Please select the College of Arts and Sciences history requirement from the approved list of U.S. and non-U.S. history courses (https://academicbulletins.sc.edu/undergraduate/arts-sciences/history-requirement/).

Social Science and Fine Arts or Humanities (6 hours)
Courses Acceptable for Social Science and Fine Arts or Humanities Credit in Degree Programs in the College of Arts and Sciences (https://academicbulletins.sc.edu/undergraduate/arts-sciences/courses-acceptable-social-science-fine-arts-humanities/)

- Three hours of Social Science
- Three hours of Fine Arts or Humanities

3. Program Requirements (28-43 hours)
Supporting Courses (16 hours)

must be passed with a C or higher

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select one of the following: 1</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>PHYS 201 &amp; 201L</td>
<td>General Physics I and General Physics Laboratory I</td>
<td></td>
</tr>
<tr>
<td>PHYS 211 &amp; 211L</td>
<td>Essentials of Physics I and Essentials of Physics I Lab</td>
<td></td>
</tr>
<tr>
<td>Select one of the following: 2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>PHYS 202 &amp; 202L</td>
<td>General Physics II and General Physics Laboratory II</td>
<td></td>
</tr>
<tr>
<td>PHYS 212 &amp; 212L</td>
<td>Essentials of Physics II and Essentials of Physics II Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 111 &amp; 111L</td>
<td>General Chemistry I and General Chemistry I Lab</td>
<td></td>
</tr>
<tr>
<td>CHEM 112 &amp; 112L</td>
<td>General Chemistry II and General Chemistry II Lab</td>
<td></td>
</tr>
</tbody>
</table>

Total Credit Hours 16

1 Students in the Physical Oceanography concentration must take PHYS 211 & PHYS 211L.
2 Students in the Physical Oceanography concentration must take PHYS 212 & PHYS 212L.

Minor (18 hours) optional
A student in the Marine Science major may choose a minor consisting of at least 18 credit hours of prescribed courses. (Some minors in the sciences require a minimum of 16 hours.) The subject area of the minor may be related to the major. Students pursuing interdisciplinary minors who wish to use courses in their major department for minor credit must petition the College Committee on Scholastic Standards and Petitions for permission to do so.

The minor is intended to develop a coherent basic preparation in a second area of study. Interdisciplinary minors can be designed with the approval of the assistant dean for academic affairs and advising.
Courses applied toward general education requirements cannot be counted toward the minor. No course may satisfy both major and minor requirements. All minor courses must be passed with a grade of C or higher. At least half of the courses in the minor must be completed in residence at the University.

A list of minor programs of study can be found at Programs A-Z (https://academicbulletins.sc.edu/undergraduate/programs-az/).

4. Major Requirements (36 hours)
a minimum grade of C is required in all major courses

Major Courses (13 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI 311</td>
<td>Biology of Marine Organisms</td>
<td>4</td>
</tr>
<tr>
<td>MSCI 313</td>
<td>The Chemistry of the Sea</td>
<td>4</td>
</tr>
<tr>
<td>MSCI 314</td>
<td>Physical Oceanography</td>
<td>4</td>
</tr>
<tr>
<td>MSCI 505</td>
<td>Senior Seminar</td>
<td>1</td>
</tr>
</tbody>
</table>

Required Field Experience  1

Total Credit Hours  13

1 All MSCI majors are required to complete a minimum of 60 hours of marine science field effort. Possibilities include taking the MSCI 460 class, semester or summer internship, REU, semester at sea, faculty-sponsored field research or cruise or field data collection/analysis experience. Students who opt for an experience other than the MSCI 460 class must submit a petition for an alternative field experience to the Undergraduate Director. If the alternative is approved, the student must submit a short (2-3 page minimum) report at the completion of the experience to the Undergraduate Director for approval. Upon approval, the Undergraduate Director will notify the Dean's office of the alternative and the student’s record will be updated to reflect zero credit hours in MSCI 460 for meeting the field effort requirement. If a student takes the MSCI 460 class (2-credit hours), those credits will be counted towards their 23 major elective credit hours.

Major Electives (23 hours)

Students, in consultation with a faculty advisor, must select 23 hours of major electives. Preferred courses available for major credit are listed below; however, any course which is eligible for cognate credit in the College of Arts and Sciences can potentially be a major course with consent of faculty advisor. Hours used to fulfill an optional concentration count toward the fulfillment of the 23 hours of major electives, e.g., students selecting Biological Oceanography would fulfill 13 hours of the 23 hours of required major electives.

Courses Acceptable for Major Credit

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI courses numbered 300 and above</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSCI 399</td>
<td>Independent Study  1</td>
<td></td>
</tr>
<tr>
<td>MSCI 495</td>
<td>Internship in Marine Science  1</td>
<td></td>
</tr>
</tbody>
</table>

MSCI 496 Undergraduate Research  1
MSCI 497 Undergraduate Research  1
MSCI 498 Undergraduate Research  1
MSCI 499 Undergraduate Research  1
MSCI 505 Senior Seminar  1

BIOI 301 Ecology and Evolution
& 301L and Ecology and Evolution Laboratory  4
BIOI 302 Cell and Molecular Biology
& 302L and Cell and Molecular Biology Laboratory  4
BIOI 303 Fundamental Genetics  3
BIOI 450 Principles of Biological Oceanography  3
BIOI 460 Advanced Human Physiology
& 460L and Advanced Human Physiology Laboratory  4
BIOI 497 Undergraduate Seminar in Biological Sciences  1
BIOI 505 Developmental Biology
& 505L and Developmental Biology Laboratory I  4
BIOI 534 Animal Behavior
& 534L and Animal Behavior Laboratory  4
BIOI 541 Biochemistry
& 541L and Biochemistry Laboratory  4
BIOI 543 Comparative Physiology
& 543L and Comparative Physiology Laboratory  4
BIOI 549 Plant Physiology  4
BIOI 550 Bacteriology
& 550L and Bacteriology Laboratory  4
BIOI 570 Principles of Ecology
& 570L and Principles of Ecology Laboratory  4
BIOI 599 Topics in Biology  1
& 599L  1
BIOI 640 Microbial Ecology  3
BIOI 652 Evolutionary Biology  3
BIOI 654 Speciation  3
BIOI 670 Plant Ecology  3
BIOI 690 Ultramicroscopy  3
CHEM 321 Quantitative Analysis
& 321L and Quantitative Analysis Laboratory  4
CHEM 331L Essentials of Organic Chemistry Laboratory I  1
CHEM 332L Essentials of Organic Chemistry Laboratory II  1
CHEM 333 Organic Chemistry I
& 333L and Comprehensive Organic Chemistry Laboratory I
CHEM 334 Organic Chemistry II
& 334L and Comprehensive Organic Chemistry Laboratory II  5
CHEM 334L 
CHEM 511 Inorganic Chemistry  3
CHEM 541 Physical Chemistry
& 541L and Physical Chemistry Laboratory  5
CHEM 542 Physical Chemistry
& 542L and Physical Chemistry Laboratory  5
CHEM 621 Instrumental Analysis  3
CSCE 561 Numerical Analysis  3
ECON 548 Environmental Economics  3
ENVR 548 Environmental Economics  3
ENVR 571 Conservation Biology  3
ENVR 572 Freshwater Ecology  3
ENVR 590  1
### Concentrations (12-15 hours)

Students may elect to have a Concentration specified directly on their academic transcript upon graduation from the Marine Science Program. In order to earn a Concentration certification, students must take the following courses, with an additional course(s) to be decided upon by the student and his or her Faculty Advisor. These courses may also be included in the 36 major credit hours required for graduation.

**Biological Oceanography** (13 hours minimum)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 301</td>
<td>Ecology and Evolution and Ecology and Evolution Laboratory (Lab not required)</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 302 or BIOL 302L or BIOL 303</td>
<td>Cell and Molecular Biology (Lab not required)</td>
<td>3</td>
</tr>
</tbody>
</table>

Select two additional courses (six hours minimum) from the following list of marine biology, ecology, biology courses or similar courses as approved by advisor:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSCI/BIOL 450</td>
<td>Principles of Biological Oceanography</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 502</td>
<td>Environmental Microbiology</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 510</td>
<td>Invertebrate Zoology</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 525</td>
<td>Marine Plants</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 535</td>
<td>Fishery Management</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 536</td>
<td>Ichthyology</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 537</td>
<td>Aquaculture</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 538</td>
<td>Behavior of Marine Organisms</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 552</td>
<td>Population Genetics</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 574</td>
<td>Marine Conservation Biology</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 575</td>
<td>Marine Ecology</td>
<td></td>
</tr>
<tr>
<td>MSCI/BIOL 576</td>
<td>Marine Fisheries Ecology</td>
<td></td>
</tr>
</tbody>
</table>
Marine Science, B.S.

**Course** | **Title** | **Credits**
---|---|---
MSCI 390 | Policy and Marine Science | 3
GEOG 516 | Coastal Zone Management | 3
ENVR 548 | Environmental Economics | 3

One more Coastal Resource Management & Marine Policy course at the 400-level or above | 3

**Total Credit Hours** | 12

**Geological Oceanography (15 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| GEOL 302 | Rocks and Minerals | 4
| GEOL 305 | Earth Systems through Time | 4
| or GEOL 335 | Processes of Global Environmental Change | 4
| GEOL 315 | Surface and Near Surface Processes | 4
| or GEOL 325 | Stratigraphy and Sedimentary Basins | 4

One more Geological Oceanography course at the 300-level or above | 3

**Total Credit Hours** | 15

**Physical Oceanography (12 hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
</table>
| MATH 241 | Vector Calculus | 3
| MATH 242 | Elementary Differential Equations | 3
| Select two of the following: | 6 |
| MSCI 557 | Coastal Processes | 3
| MSCI 579 | Air-Sea Interaction | 3
| MSCI 581 | Estuarine Oceanography | 3
| MSCI 582 | Marine Hydrodynamics | 3
| MSCI 590 | Beach-Dune Interactions | 3

**Total Credit Hours** | 12

1.Courses are taught alternate years. Please check teaching schedule.

2. Students in the Physical Oceanography concentration must take PHYS 211 & PHYS 211L and PHYS 212 & PHYS 212L.

**Major Map**

A major map is a layout of required courses in a given program of study, including critical courses and suggested course sequences to ensure a clear path to graduation.

Major maps are only a suggested or recommended sequence of courses required in a program of study. Please contact your academic advisor for assistance in the application of specific coursework to a program of study and course selection and planning for upcoming semesters.

**Marine Science, B.S. No Concentration**

**Marine Science, B.S. Biological Oceanography Concentration**

**Marine Science, B.S. Chemical Oceanography Concentration**

**Marine Science, B.S. Coastal Resource Mgmt. & Marine Policy Concentration**

**Marine Science, B.S. Geological Oceanography Concentration**
Marine Science, B.S.  Physical Oceanography Concentration