STUDENT INFORMATION
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THE MARINE SCIENCE MAJOR

The major in Marine Science integrates the study of Biology, Chemistry, Geology, Physics and Mathematics and applies these to the marine environment. Major courses are selected from Marine Science, Biology, Chemistry, Computer Science, Geography, Geology, Mathematics, Statistics, or Physics. Students are encouraged to select an area of emphasis in marine biology, coastal geology, marine chemistry, atmosphere/ocean dynamics, or marine analytical technology. Lecture, laboratory, and field experiences are integrated to provide a well-rounded scientific program. The facilities available for Marine Science majors include a lecture and laboratory complex, a computer research lab, ocean-going and estuarine research vessels, and a full complement of oceanographic sampling equipment. Laboratories and research projects are conducted at various coastal habitats, including Waties Island, a barrier island, marsh and upland complex owned by the University. Marine science graduates are employed as marine and environmental researchers for government agencies, universities, and private industry; as marine and environmental educators; as high school and middle school science teachers; and in the fields of marine and environmental management and policy. Outstanding students are encouraged to pursue graduate study.

EDUCATIONAL OBJECTIVES

Students who graduate with a B. S. in Marine Science should be able to:

1. Explain the principles, concepts, applications, and inter-relations of biology, chemistry, geology, physics, and mathematics, as they apply to the marine environment.
2. Use the scientific method to describe, analyze, and solve scientific problems involving marine science and related fields.
3. Exhibit proficiency in the use of technology, critical thinking, and quantitative tools used in marine science applications.
4. Successfully pursue entry-level jobs or enter graduate programs in various scientific fields.
5. Interact and communicate effectively with peers, mentors, and the larger community.
FACULTY & STAFF

FACULTY

Dr. Daniel Abel (Professor, Academic Advisor) has research interests in the fields of shark biology and environmental science. His interests also include innovative techniques for teaching critical thinking skills. He is the co-author of the textbooks Environmental Issues: An Introduction to Sustainability and Issues in Oceanography; is director of the CCU Campus and Community Sustainability Initiative, and is a Senior Fellow with the U.S. Partnership for Education for Sustainable Development. Dr. Abel's office is located in the Science II (SCI2) building, room 102D and his office phone number is 843-349-2257 (email: dabel@coastal.edu).

Dr. George Boneillo (Senior Lecturer) has research interests in plankton ecology and nutrient dynamics in coastal ecosystems. He has been studying the causes and impacts of harmful algal blooms. His research has focused primarily on Aureococcus anaophagefferens, the organism responsible for brown tides. Dr. Boneillo’s office is located in the Science II (SCI2) building, room 210R and his office phone number is 843-349-5068 (e-mail: gboneillo@coastal.edu).

Dr. Erin Burge (Professor, Academic Advisor) is a molecular marine biologist who has investigated numerous topics, including host-pathogen interactions between striped bass and mycobacteria, shrimp immune gene expression, ecotoxicology in the mummichog, and the environmental immunology of oysters. His teaching and research focus on molecular mechanisms of immunity and physiological adaptation to pathogens and environmental stressors in fish, crustaceans, and mollusks. Dr. Burge's office is located in the Science II (SCI2) building, room 102E and his office phone number is 843-349-6491 (e-mail: eburge@coastal.edu).

Dr. Diane Fribance (Associate Professor, Academic Advisor) received a B.A. in Computer Science from Williams College in 2003, and has a Masters and a Ph.D. in Oceanography from the University of Connecticut. She was the recipient of a National Research Council fellowship and spent two years working for the Naval Research Laboratory at Stennis Space Center in Mississippi. Her research focuses on the physics of the coastal oceans, including estuarine health and circulation, effects of hurricanes on coastal transport, and the connections between seafloor topography and mixing rates. Dr. Fribance’ office is located in the Science II (SCI2) building, room 227 and her office phone number is 843-349-5072 (e-mail: dfribance@coastal.edu).

Dr. Craig Gilman (Director of Undergraduate Programs, Associate Professor, Academic Advisor) received a Ph. D. in Physical Oceanography from the University of Rhode Island. Aside from teaching Physical Oceanography and Atmospheric Science, he is director of the Environmental Science Minor Program. His research interests lie in the interdisciplinary field of atmosphere/ocean dynamics and satellite oceanography. Several of his recent research projects encompass Gulf Stream dynamics, hurricane formation, and impacts of El Nino. Dr. Gilman's office is located in the Science II (SCI2) building, room 102-G and his office phone number is 843-349-2228 (email: gilman@coastal.edu).
Dr. Jane Guentzel (Professor, Academic Advisor) is a marine and environmental chemist whose research focuses on the biogeochemistry of mercury and other trace elements in aquatic systems; the influence of atmospheric deposition and transport on the cycling of mercury and trace elements in these systems; and the abundance and distribution of plastics in freshwater and marine environments. Dr. Guentzel's office is located in the Science II (SCI2) building, room 102J and her office phone number is 843-349-2374 (email: jguentze@coastal.edu).

Dr. Angelos Hannides (Associate Professor, Academic Advisor) is a marine chemist. His specialty is in marine biogeochemistry and he focuses on organic matter cycling and nutrient dynamics. His main research interests include the study of sandy habitats as a major ecosystem service provider, the advancement of autonomous biogeochemical observations of the marine environment, and the science-driven assessment and management of ocean health. His office is located in the Science II (SCI2) building, room 102F and his office phone number is 843-349-2538 (email: ahannides@coastal.edu).

Dr. Juliana Harding (Director of Operations, Professor, Academic Advisor) is a marine biologist with interests in estuarine ecology, population dynamics, larval biology and culture, molluscan ecology, aquaculture, sclerochronology and scleroarchaeology, restoration and conservation ecology, and the biology and ecology of invasive species. Her research focuses on marine community ecology. Dr. Harding’s office is located in the Science II (SCI2) building, room 226 and her office phone number is 843-349-2983 (email: jharding@coastal.edu).

Dr. Bret Jarrett (Lecturer) is a Geologist and Marine Scientist with more than 20 years of experience performing geological and geophysical studies. He holds an undergraduate degree in Geology (Florida State University), and M.S. and Ph.D. degrees in Marine Science from UNC Chapel Hill and USF St. Petersburg, respectively. His Ph.D. research focused on the recent sedimentological development of the southwest Florida carbonate platform. Following graduate work, Dr. Jarrett held two post-doctoral positions conducting marine geological research, as well as two Visiting Assistant Professor positions in Marine Science at the U.S. Coast Guard Academy and Colby College. Most recently, Dr. Jarrett has conducted extensive marine studies throughout the Caribbean islands. At CCU, Dr. Jarrett has taught lecture and laboratory courses focused in the field of Marine Geology. Dr. Jarrett’s office is located in the (AOC2) building, room 353 and his office phone number is 843-349-2916 (email: bjarrett@coastal.edu).

Dr. Cecelia Krahforst (Visiting Professor in Marine Science) is a coastal resource scientist. She is interested in the balance among environmental human use, conservation, & protection. Her primary area of expertise is in bioacoustics but she also incorporates fisheries & social dynamics into her research. Dr. Krahforst’s main interest is to understand the role the soundscape plays in organismal behavior, physiology, & ecology. Because the soundscape is one component that can help drive adaptive behaviors and population levels, it also can influence fisheries resources for human populations. Therefore, Dr. Krahforst also explores the connections between the natural & social sciences in order to understand the role of management strategies in balancing human-use and environmental conservation in the coastal zone. Dr. Ryan Rezek (Assistant Professor, Academic Advisor) is a marine biologist. His office is located in the Science II (SCI2) building, room 210-O, and his office phone number is 843-349-4079 (email: rrezek@coastal.edu).
Dr. Eric Rosch (Lecturer) is a marine biologist. He received his Ph.D. in Zoology from Texas A&M University and his M.S. degree in Marine Biology and Coastal Zone Management from Nova Southeastern University. His main research interests pertain to marine invertebrate behavior and ecology, especially crustaceans. His past research projects have involved social interactions within and among fiddler crab species (genus Uca) as well as experiments exploring factors that influence larval development of several crab species. He has also studied benthic ecology of nearshore systems and conducted environmental impact studies using macroinvertebrates. His office is located in the Science II (SCI2) building, room 102A and his office phone number is 843-349-2261 (email: erosch@coastal.edu).

Dr. Zhixiong Shen (Associate Professor, Academic Advisor) received his B.Sc. degree from the Department of Urban and Environmental Sciences in Peking University, China in 2002 and a Ph.D. degree from the Department of Geography in the University of Liverpool, Britain in 2007. Dr. Shen worked as a McWilliams Postdoctoral Research Associate during 2007-2012 and a Research Assistant Professor during 2012-2014 at Tulane University, and joined Coastal Carolina University in August 2014. Dr. Shen has research interests in Quaternary geochronology, Earth surface processes, neotectonics, environmental change, sea-level change and fluvial and coastal geology. His office is located in the Science II (SCI2) building, room 102B and his office phone number is 843-349-6593 (email: zshen@coastal.edu).

Dr. Lauren Stefaniak (Assistant Professor, Academic Advisor) earned a B.A. in Biology with a concentration in Ecology and Evolutionary Biology from Cornell University and a Ph.D. in Oceanography from the University of Connecticut. Previous research projects have ranged from molecular taxonomy and biology of invasive ascidians to determining effects of ultraviolet radiation on embryos of broadcast spawning reef-building corals and molecular evolution of meiosis, with collaborations in the United States, Mexico, New Zealand, and Japan. Her current research interests include benthic marine ecology on the individual, population, and community levels, with a particular focus on the biological and physical controls of species distributions and how differential population connectivity, direct human activities (introduced species, coastal hardening, artificial reefs, etc.), and climate change can alter species distributions. (email lstefani@coastal.edu). Her office is 102 H SCI2 and her office phone number is 843-349-2222.

Ms. Margaret (Mandy) Stoughton (Senior Lecturer) is a biological oceanographer whose research interests include bio-optical modeling and photosynthesis of seagrass. Ms. Stoughton’s office is located in the Science II (SCI2) building, room 210P and her office phone number is 843-349-2236 (email: mstoughto@coastal.edu).

Dr. Eric Wright (Professor, Academic Advisor) is a marine and coastal geologist. His research interests focus on the geologic development and sedimentology of coastal, shelf and wetland environments. Dr. Wright's office is located in Science II (SCI2) building, room 210Q and his office phone number is 843-349-2945 (email: ewright@coastal.edu).
Dr. Robert Young (Professor, Academic Advisor) is a marine biologist whose research interests include the ecology, behavior, and management of fishes and marine mammals, as well as other areas of coastal and estuarine ecology. A former president of the South Carolina Marine Educators Association, he has been involved in numerous marine education programs for students, teachers, and the community. Dr. Young's office is located in the Coastal Science Center, room 160-I, and his office phone number is 843-349-2277 (email: ryoung@coastal.edu).

STAFF

Walter M. Showers (Laboratory Specialist II) oversees the operation, safety and maintenance of the Marine Science laboratories, lab prep areas, stockrooms, and equipment maintenance. Mr. Showers is located in the Science II (SCI2) building, room 213 and his office phone number is 843-349-5050 (email: wshowers@coastal.edu).

Elizabeth Bischoff (Administrative Specialist) assists the Chair of the Department of Marine. Her responsibilities include running the departmental office and budgetary duties, including reports and field trip arrangements. The Administrative Assistant hires, trains, and supervises several Work-Study students who help keep the office running smoothly. Ms. Bischoff also attends to the needs of students who wish to change their advisor and who have various other academic concerns. Ms. Bischoff is located in the Science II (SCI2) building, room 102I and her office phone number is 843-349-2707 (email: ebischoff@coastal.edu).
STUDENT CLUBS & ORGANIZATIONS

Students are encouraged to become active in student clubs and organizations on campus. Clubs are a great way for new students to meet and make friends, and for continuing students to become involved in their community. Holding a leadership position in a club or organization is a great way to enhance your resume and many scholarship committees consider a student's extracurricular activities in funding decisions. A list of CCU marine science oriented clubs is provided below.

Aqua League (Scuba Squad)
https://coastal.campuslabs.com/engage/organization/aqualeague
Aqua League is the SCUBA diving club at Coastal Carolina University. Everyone is welcome - divers and non-divers

Coastal Elasmobranch Society (CES)
https://coastal.campuslabs.com/engage/organization/coastalelasmobranchsocietymarine
The CES is a society devoted to raising funds for the scientific study of living and fossil chondrichthians (sharks, skates, rays and chimaeras).

Coastal Saltwater Anglers
https://coastal.campuslabs.com/engage/organization/coastalsaltwateranglers
Coastal Carolina students addicted to saltwater fishing. Southern Kingfish Association Division 9 Open Class Tournament Team

Coastal Sea Turtle Club
https://coastal.campuslabs.com/engage/organization/seaturtleclub
The goal of this organization is to increase the interest and education of sea turtles and their conservation
DEGREE REQUIREMENTS FOR
THE BACHELOR OF SCIENCE IN MARINE SCIENCE (B.S)

Disclaimer: The University Catalog represents the official requirements for the degree. We have tried to make this handbook error-free, but if a discrepancy is found between the University Catalog and this Marine Science Student Handbook, the Catalog takes precedence. The most current version of the Coastal Carolina University Undergraduate Catalog is available from the University website.

Students must earn a grade of C or better in all major and upper-level science courses. Students who have not earned a C or better in a Mathematics course within one year of enrollment at Coastal Carolina University are considered to be at risk for the Marine Science program.

I. CORE CURRICULUM (36-40 Credits)
For specific requirements see the current University Catalog

II. GRADUATION REQUIREMENT (3-6 Credits)
Minimum grade of ‘C’ is required.

   HIST 201 or POLI 201         3
   UNIV 110 The First-Year Experience     3

UNIV 110 is required for all students with the following exceptions:
- Students admitted as transfer students who transfer in 12 or more credits from another institution;
- Students 21 years of age or older prior to their first semester at CCU;
- Students who graduated from the Horry County Scholar’s Academy.

III. FOUNDATION COURSES (34-46 Credits)*

   MSCI 111/111L* Introduction to Marine Science/Laboratory 4
   MSCI 112/112L Introduction to Earth and Marine Geology/Laboratory 4
   BIOL 121/121L* Biological Science I/Laboratory 4
   BIOL 122/122L* Biological Science II/Laboratory 4
   CHEM 111/111L* General Chemistry I/Laboratory 4
   CHEM 112/112L General Chemistry II/Laboratory 4
   MATH 160* Calculus I 4
   MATH 161 Calculus II 4
   PHYS 211/211L Essentials of Physics I/Laboratory 4
   PHYS 212/212L Essentials of Physics II/Laboratory 4
   STAT 201/201L Elementary Statistics/Laboratory 4

A grade of ‘C’ or better is required in all foundation courses except BIOL 121, CHEM 111/111L, MATH 161, and PHYS 212/L.
*BIOL 121/121L, BIOL 122/122L, MATH 160, and MSCI 111/111 also satisfies core curriculum math, science, and communication requirements. Though listed above under foundation courses, their credits are counted toward the total credits for the core curriculum and not toward the foundation total.

IV. MAJOR REQUIREMENTS (36 Credits)

MSCI 301/301L Physical Oceanography/Laboratory 4
MSCI 302/302L Marine Biology/Laboratory 4
MSCI 304/304L Marine Geology/Laboratory 4
MSCI 305 /305L Marine Chemistry/Laboratory 4

Choose marine science courses at the 300 level or above, or preapproved MSCI credit at the 300 level or above offered through a study abroad program (8 Credits)

Choose science courses from the following: (12 Credits)

Marine science courses numbered 300 and above (not taken above)
Biology courses from the following list:
BIOL 310/310L Invertebrate Zoology/Laboratory (4)
BIOL 315/315L Comparative Vertebrate Anatomy/Laboratory (4)
BIOL 322/322L Physiological Ecology/Laboratory (4)
BIOL 330/330L Microbiology/Laboratory (4)
BIOL 340/340L Cell Biology/Laboratory (4)
BIOL 343/343L Comparative Physiology/Laboratory (4)
BIOL 350/350L Fundamentals of Genetics/Laboratory (4)
BIOL 365/365L Evolution/Laboratory (4)
BIOL 370/370L Principles of Ecology/Laboratory (4)
BIOL 399 Independent Study (1-6)
BIOL 400 Comparative Animal Nutrition (3)
BIOL 410/410L Developmental Biology/Laboratory (4)
BIOL 426/426L Ichthyology: Fish Biology/Laboratory (4)
BIOL 436/436L Animal Behavior/Laboratory (4)
BIOL 442/442L Advanced Genetics/Laboratory (4)
BIOL 450/450L Molecular Biology/Laboratory (4)
BIOL 451 Molecular Techniques (4)
BIOL 461/461L Ornithology/Laboratory (4)
BIOL 466 Ecology of Fishes (3)
BIOL 481/481L Freshwater Ecology/Laboratory (4)
BIOL 484/484L Conservation Ecology/Laboratory (4)
BIOL 485/485L Vertebrate Zoology/Laboratory (4)
BIOL 488/488L Wetland Plant Ecology/Laboratory (4)
BIOL 492 Phylogenomics (3)
BIOL 499 Directed Undergraduate Research (1-6)

Chemistry courses at the 300 level or above except CHEM 301 and CHEM 306
CSCI 140/L Introduction to Algorithmic Design I/Laboratory
CSCI 150/L Introduction to Algorithmic Design II/Laboratory
Geology courses numbered at the 300 level or above
Mathematics courses numbered at 240 or above, except MATH 329, 330, 348 and 403
Physics courses numbered at the 300 level or above
Statistics courses numbered at the 300 level or above
Approved study abroad transfer credit (1-12)

A grade of ‘C’ or better is required for all major requirements. No more than six credit hours of independent study, internship, and/or directed undergraduate research and/or senior thesis may be used for major credit.

V. COGNATE OR MINOR REQUIREMENTS (0 Credits)

Students majoring in marine science are not required to complete a minor or cognate. However, they may elect to minor in any field in which Coastal Carolina offers a minor. If the minor includes courses which can be used for marine science major credit, then up to eight credit hours of those courses may also be applied toward the marine science major’s upper-level science requirement of 36 credit hours. Students seeking minors must have an adviser selected from the department offering the minor in addition to their marine science adviser.

VI. ELECTIVES (0-13 credits)

TOTAL CREDITS REQUIRED 120

DOUBLE MAJORS
Students may double major in any program which offers a B.S. degree. To complete a double major, students must satisfy the major requirements for both programs and complete a minimum combined total of 48 upper-level credits in the two majors, all with a grade of ‘C’ or better.
COASTAL GEOLOGY MINOR
The curriculum in the coastal geology minor is designed to provide the student with a thorough education in geologic processes and features typical of coastal areas. The program provides rigorous education and practical field experience for students preparing for a career or graduate education in coastal geological studies. Students interested in pursuing the coastal geology minor should consult with their major adviser and the coordinator of the geology minor to plan their program of study as early as possible. A student must earn a grade of ‘C’ or better in all courses to be applied toward the minor in coastal geology.

COASTAL GEOLOGY MINOR (20 Credits)

Choose one from the following: (4 Credits)
GEOL 102/102L Environmental Geology/Laboratory (=MSCI 102/102L) (4)
GEOL 111/111L Physical Geology/Laboratory (4)
GEOL 112/112L Introduction to Earth and Marine Geology/Laboratory (=MSCI 112/112L) (4)

Complete the following:
GEOL 304/304L Marine Geology/Laboratory (=MSCI 304/304L) (4)
GEOL 316/316L Sedimentary Geology/Laboratory (=MSCI 316/316L) (4)

Choose two from the following: (8 Credits)
GEOL 300/300L or above
MSCI 397 Q* Marine Science Senior Thesis Research Methods (1-4)
MSCI 399 Q* Independent Study (1-4)
MSCI 416/416L Hydrogeology/Laboratory (=GEOL 416/416L) (4)
MSCI 440/440L Applied Coastal Geophysics (4)
MSCI 444/444L Long-term Climate and Landscape Change/Laboratory (4)
MSCI 445/445L Coastal Processes/Laboratory (4)
MSCI 497 Q* Marine Science Senior Thesis (3-6)
MSCI 499 Q* Directed Undergraduate Research (approved by the Geology Minor coordinator) (3-6)

TOTAL CREDITS REQUIRED 20

No more than four credit hours of independent study, internship, and/or directed undergraduate research and/or senior thesis may be used toward minor credit.
MARINE SCIENCE MINOR (20 Credits)

PREREQUISITES:
MSCI 111/111L Introduction to Marine Science/Laboratory 4
MSCI 112/112L Introduction to Earth and Marine Geology/Laboratory 4

Choose twelve credits of MSCI courses at the 300 level or above of which 8 credits must be taken from the following: (8 Credits)
MSCI 301/301L Physical Oceanography/Laboratory (4)
MSCI 302/302L Marine Biology/Laboratory (4)
MSCI 304/304L Marine Geology/Laboratory (4)
MSCI 305/305L Marine Chemistry/Laboratory (4)

TOTAL CREDITS REQUIRED 20

No more than four credit hours of MSCI 397, 398, 399, MSCI 497, 498 and/or MSCI 499 may be included in the minor.
A grade of ‘C’ or better is required in each course to be applied toward the minor

CAREER EXPLORATION

Students are urged to start thinking about their plan for life after graduation during their first year at Coastal. Whether you are planning on entering the job market directly, or you are planning on continuing your education in a graduate program, it is never too early to start preparing. Gaining valuable experience through research projects and internships, as well as getting involved in clubs and volunteer work, will make your resume more attractive to employers and graduate schools. The Career Services Center is located in the Lib Jackson Student Union. Students can receive job search assistance as well as career development counseling in this office.
INTERNET LINKS

UNIVERSITY WEB PAGE

www.coastal.edu
Through Coastal Carolina University's web page, students can gain access to such resources as the Kimbel Library catalog, the Virtual Career Center including part-time and full-time job listings, information on recreational and intramural activities as well as information on academic departments.

DEPARTMENT OF MARINE SCIENCE WEB PAGE

https://www.coastal.edu/marine/
Features pages for many Marine Science courses, information on the Marine Science Computer Lab and various student services. New pages are being added so keep this page bookmarked.

WEB ADVISOR

https://webadvisor.coastal.edu/
Using your Coastal username (e-mail address) as your login name and your Coastal PIN (Personal Identification Number) as your password, any student can access their academic or financial summaries and profiles. WebAdvisor is also used for course registration.

MOODLE

https://moodle.coastal.edu/
Moodle is the University's on-line course management system. Using your Coastal username (e-mail address) as your login name and your Coastal PIN (Personal Identification Number) as your password, any student can access on-line material related to their current and previous coursework including links to submit assignments, take quizzes, and view on-line only materials.
IMPORTANT ACADEMIC INFORMATION

COURSE LOAD: A typical course load is 15 – 17 hours or 5 classes per semester. To take more than 18 credit hours a semester, a student must be prepared to pay for the additional credit(s). Permission to add an overload must be requested via a special permission form.

DROPPING A COURSE: The academic calendar lists the last day a student may drop or withdraw from a course without receiving a W/F (drop with a failing grade). Students are urged to check the schedule each semester, although many faculty include this important date on the course syllabus.

GRADES OF “D”: If you receive a “D” or below in any upper-level courses taken for major credit or in any other course in which you need a "C" or better, you will be required to repeat the course (refer to section on repetition of a course).

REPEAT FORGIVENESS OF A COURSE: A student may elect to count up to 13 credits of specific courses for Repeat Forgiveness. Under this policy, the grade for both the original and the later course appear on the transcript, but only the latter grade is included in the GPA calculation. Only courses with a grade of C, D, D+, F, or WF are eligible for repeat forgiveness. A student may not exercise the “repeat forgiveness” option for courses in which the student was assigned a grade as a result of academic misconduct. Students using the “repeat forgiveness” option should be aware that professional schools, graduate programs, and future employers may apply their own criteria that may not recognize a “repeat forgiveness” option in evaluating credentials for prospective students and employees.

STUDENT RESEARCH PROJECTS: Marine Science students are strongly encouraged to complete a directed undergraduate research project and/or a senior thesis project. It is the Department's core philosophy that students benefit greatly from hands-on experience and this training will prove invaluable once the student has graduated and finds himself/herself competing in the job market or applying to graduate schools. In order to sign up for either class the student must fill out a Contract for Research Work, an Instructional/Course agreement, Non-Traditional Study form, and a Special Permission form. Once all the necessary signatures have been obtained, the student then takes the Special Permission form to the Registrar’s office to be enrolled in the class. No more than six (6) hours of independent study, internship, and/or directed undergraduate research and/or senior thesis may be used for major credit.

SPECIAL ENROLLMENT REQUESTS: Special Enrollment Request Forms are used in the following instances, Transient Study, Transient Study through the National Student Exchange Program, Transient Study Abroad, Concurrent Enrollment, Cooperative Education, and Correspondence Courses. If a student is planning on taking any classes anywhere besides Coastal Carolina University, the student needs to fill out a Special Enrollment Request Form to ensure that the course will transfer.** This form can be found in the Department of Marine Science Office. After the student has completed the course, the student should request that a copy of the transcript for that course be sent to Coastal. Once the transcript has been sent and the Registrar’s Office has been given enough time to enter the course into the student’s records, then the student should request a copy of their Transfer Credit Report, either from the Department of Marine

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Science Administrative Assistant, or by the Registrar’s Office to ensure that the class was transferred correctly. A student must earn a “C” or better for a course to transfer.

**Notes:** Courses will not be accepted for transfer if the student has previously failed to earn the required grade in an equivalent course at CCU. A student may petition to take a course at another school in which s/he has failed to earn the required grade at CCU.
OPPORTUNITIES FOR MSCI RESEARCH EXPOSURE COURSES

The Faculty within the Department of Marine Science often have opportunities for students to participate in Experiential Learning through research exposure projects. These projects are ongoing research efforts of faculty/staff that provide opportunities for students to participate in research in MSCI 399 sections. The pre-requisites for MSCI 399 are permission of instructor and completion of a nontraditional study agreement. For one credit of MSCI 399, participating students must log 50 hours of work during the semester, including informational/training meetings and field and/or laboratory research. For information on specific MSCI 399 opportunities, please contact individual faculty members listed within the course description.

Research exposure courses may be available within the following areas:

Water Quality Monitoring
Physical Monitoring of Coastal Waters
Behavioral Ecology of Coastal Fauna
Fish Community Monitoring
Oyster Reef Dynamics
Tidal Creek Ecosystem Dynamics
Sand Biogeochemistry Monitoring

- Water Quality Monitoring
  Dr. Susan Libes CSCC 113 susan@coastal.edu, Marine Science/Environmental Quality Lab
  Students will collect water samples, assist with chemical analyses of samples and collate data. The goal of the on-campus monitoring to provide an assessment of water quality conditions in the stormwater ditches and retention ponds on campus, all of which eventually send waters off campus towards the Waccamaw River. Adjacent neighborhoods also send stormwater flows from their ditches into CCU ditches. Sampling is conducted every other week during the academic semesters. The data are being used to evaluate whether water quality is improving or degrading over time at some or all of the sites using a watershed approach.

- Physical Monitoring of Coastal Waters
  Dr. Diane Fribance SCI2-227 dfribance@coastal.edu
  Students will participate in long-term monitoring of physical properties in shallow coastal waters, including temperature and salinity. Focus will be on the swash zone(s) of Myrtle Beach, examining changes in salinity intrusions over time, changes in density related to tidal flow, and impacts of channel relocations. Data sets will build over time to generate a record of individual swash systems and provide opportunities for students to learn data processing and interpretation techniques.
• Behavioral Ecology of Coastal Fauna
  Dr. Eric Rosch, SCI2-210O eroesch@coastal.edu
  Projects associated with this section involve the behavior, abundance, and distribution of coastal fauna and how they are impacted by human activities and the environment. These projects will be ongoing and will continue through fall, spring, and summer semesters. Students will focus on either shorebird foraging success or ocypodid crab ecology, depending upon interest. Shorebird studies will assess the effect of the presence of other birds and nearby man-made structures/activities (piers, jetties, hotels, boats, fishing, etc.) on the foraging rate and success of pelicans and other birds.

• Fish Community Monitoring
  Dr. Erin J. Burge, SCI2-102E eburge@coastal.edu
  Students monitor fish community diversity using the VITB cameras at Frying Pan Shoal Tower. The two cameras (a shallow camera moored approximately 2.5 m below the surface, and a deeper one attached near the bottom at 15 m) survey the 3-dimensional structure that the tower legs represent and are adjacent to an expansive area of natural hard-bottom reef. Both these man-made and natural structures are important areas of high biodiversity. Students will use randomized video analysis to record species occurrences, relative population size, and species associations from the video feeds. The skills learned by students will include application of the scientific method, experimental design, standardized data collection, fish species identification, and applied content in ecology regarding community analysis.

• Oyster Reef Dynamics
  Dr. Keith Walters, SCI2-102C kwalt@coastal.edu
  Students help collect data on aerial extent, live oyster density and size frequency distribution, and juvenile oyster recruitment will be collected biannually from the restored reefs. Additional data collections and experimentation including regional comparisons to natural reefs and existing restored reefs constructed during the CORRI Program (www.corri.org) are planned. Students will be involved directly with planned field collections and experiments and have the opportunity to develop individual or group projects related to the original North Myrtle Beach mitigation efforts. The skills developed by students during the project will include application of the scientific method, experimental design, and data collection and analysis related to population and community dynamics of local oyster reefs. Both field and laboratory experiences will be involved.

• Tidal Creek Ecosystem Dynamics
  Dr. Juli Harding, SCI2-226 jharding@coastal.edu
  Students will work on research projects quantifying seasonal patterns of tidal creek 1) oyster biology, ecology and disease dynamics, 2) dynamics of associated mollusc, crustacean, and fish populations, and 3) benthic infaunal recruitment dynamics. Some projects will include weekly or quarterly observations and/or collections in North Inlet while others will focus on sample processing in Harding’s lab at CCU. Students will gain experience using the scientific method, identifying local species, and implementing standard marine biology field sampling and data analysis protocols.
Sand Biogeochemistry Monitoring  
Dr Angelos Hannides SCI2-102F ahannides@coastal.edu  
The cornerstone of the activities of the sand biogeochemistry research group is a monitoring time-series of multidisciplinary parameters in the intertidal zone of high-energy beaches. The time-series has been ongoing as part of the MSCI 399 and 399Q course on sand biogeochemistry since November of 2016 at Waties Island and quarterly sampling at several locations (currently six in addition to Waties Island) in Long Bay, SC and NC, since July 2017. At present, a group students per semester prepare for and participate in a field trip once a month, during which they document conditions, measure parameters/properties on site and collect samples that they will analyze in the laboratory over the following days/weeks until the next monthly field trip. The expanded list of planned (longer-term) monitored properties includes physical (e.g., temperature, salinity, permeability), geological (e.g., grain size and surface area, sedimentary composition, porosity, intertidal zone topography), chemical (e.g., oxygen, carbon, nitrogen, phosphorus, iron, sulfur) and biological (e.g., organic matter, chlorophyll a, microbial to macrofaunal abundances) properties and parameters. Each participating student focuses on the analysis of a subset of parameters based on her/his interest. By semester’s end, students will be able to examine their contribution to the time-series database and produce a report and presentation, that they will be encouraged to deliver in public provided their interest and opportunity.
Coastal AIMS Plan

The Coastal Accelerated Integrated Marine Science (Coastal AIMS) Plan offers a comprehensive plan for highly motivated students to complete all coursework requirements for both the B.S. in Marine Science and the M.S. in Coastal Marine and Wetland Studies within five years. Highly motivated students would enroll in above-average course loads during their first three years of study, enabling them to take up to 12 graduate credits via the Transitional Study program during their fourth year.

Students applying to the AIMS Plan must maintain a minimum cumulative undergraduate GPA of 3.0, and earn an average GPA of 3.0 or better in the 300-level MSCI core courses. At the completion of at least 90 undergraduate credits, students accepted into the AIMS Plan will apply for conditional acceptance into the CMWS program. GRE scores and the application fee will be waived for this application, which will require two letters of recommendation from CCU Graduate Faculty and a written commitment from a Graduate Faculty member to serve as the student’s M.S. adviser.

Full acceptance to the CMWS program will occur at the completion of the B.S. degree requirements and fulfillment of the above-listed academic standards. In addition to offering an expedited pathway to both the B.S. and M.S. degrees, students in the AIMS Plan may earn waivers for up to two graduate core courses. For more information, contact the Department of Marine Science.
EXTERNAL OFF-CAMPUS INTERNSHIP INFORMATION

Contact your Marine Science Faculty Advisor to learn how to submit an application for an off-campus internship.

- External Internships (MSCI 398), Independent Study (MSCI 399), Research Projects (MSCI 498 or 499) Thesis and Thesis Preparation (497, 397) are non-traditional study. You can only use 6 credits of non-traditional study for the MSCI degree.

- **Internship Enrollment Process: USA**
  - Before you start the internship you must complete the following:
    - Memorandum of Understanding (MOU)
    - Student Learning Contract
    - Intern Code of Conduct agreement
    - Course Syllabus
    - Non-traditional Study Form to create the course
    - Special Permission Form to enroll in the course

- **Internship Enrollment Process: International Internships**
  - Before you start the internship you must complete the following:
    - You must meet with the University Internship Director (Mr. Robert Bulsza) to complete necessary paperwork including MOU, Learning Contract, etc.
    - Meet with your MSCI Faculty Advisor to complete MSCI enrollment paperwork
    - Attend Mandatory Pre-Departure Orientation with the Office of International Programs

Make sure that all paperwork and course enrollment is completed prior to your departure.

**Internship Requirements**
Requirements may vary, but usually include:
- 50 hours of work per credit
- Complete required tasks on student learning contract
- Off-Campus Supervisor Evaluation
- Student Self Evaluation
- Self reflective 2-4 page essay discussing what you did in the internship and how it related to your marine science major and your career goals after graduation
STUDY ABROAD COURSES

MSCI 477/499 Coral Reef Ecology and Research in Jamaica (Maymester),
Faculty Contact: Dr. Erin Burge, eburge@coastal.edu

MSCI 376/L Sea Turtle Biology and Lab and MSCI 399 in Costa Rica (Maymester),
Faculty Contacts: Dr. George Boneillo gboneillo@coastal.edu and Dr. Eric Rosch, erosch@coastal.edu

MSCI 473/L Biology of Sharks in Bimini, Bahamas (Maymester),
Faculty Contact: Dr. Dan Abel, dabel@coastal.edu

MSCI 315/L Field Methods in Oceanographic Data Collection in Oban Scotland
(Maymester), Faculty Contact: Dr. Louis Keiner, lkeiner@coastal.edu
CCU Trustee Award Information

The Coastal Carolina University Board of Trustees has established a $5,000 Trustee Award designed to encourage students to accelerate their academic experience, completing what would normally be a four-year degree in just three years.

The award is open to all First-Time Freshmen entering Coastal Carolina University, beginning with the Fall 2014 academic year. The award is payable upon graduation conditional on the following stipulations:

- The student entered Coastal Carolina University as a First-Time Freshmen, no earlier than Fall 2014.
- The student completed their undergraduate degree within three (3) years (36 consecutive months following initial enrollment).
- The student earned (paid for) all credits at Coastal Carolina University, excluding all credits earned in high school that transferred to the University.
- The Trustee Award Application (click here for more information*) must be submitted online by the last day of the student’s first semester.
- To receive the award, the student must submit a request during the graduation process with certification that he/she has complied with items one and two (above). Award certification occurs during the graduation process, and the award is payable following certification of graduation.
- The student is responsible for all applicable taxes.

Important information regarding the Trustee Award:

While admittance into the Degree in Three Program is not required to be eligible for the Trustee award, it is highly encouraged. Students enrolled in the Degree in Three Program are automatically eligible for the Trustee Award. The program offers numerous benefits to students interested in graduating early including dedicated advising services, summer course offerings, early registration, and Learning/Living communities geared to facilitate the student's progress.

Students qualifying for the Trustee Award must apply for disbursement during their graduation process. Awards will be disbursed following verification of above mentioned criteria. Awards are in the form of a cash award. The student will receive a 1099 and the award will be subject to taxation based on the individual's tax status.

•
Marine Science Four Year Suggested Program Plan (Unofficial)

YOUR CREDITS MUST TOTAL AT LEAST 120 for the University's graduation requirements - most students finish with more than 120 credits. The plan below is based on 14-16 credits/semester. You may take up to 18 credits/semester without additional tuition charges.

Only you can determine how many credits per semester will work for you - not too many, not too few. Be careful with scheduling too many lab- requiring science courses at the same time, especially as you begin your career at CCU.

Please note:
- Courses are also offered in Maymester, Summer I & Summer II. Students should check with the Registrar’s Office and Financial Aid for current tuition and fee information.
- Up to six Marine Science Major Elective credits may be taken as internships (MSCI 398/498) and research experiences (MSCI 399/499) with professors at Coastal, or elsewhere. Ask your advisor for details.

Note: Students must place higher than MATH 130 or earn a C or better in MATH 130 before registering for BIOL 121/L, CHEM 111/L, MSCI 111/L or MSCI 112/L.

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<tr>
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<td>ENGL 102</td>
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<tr>
<td>MSCI 111/L</td>
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<td>MSCI 112/L</td>
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<td>MATH 160 (A&amp;B)</td>
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<td>MATH 161 (A&amp;B)</td>
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*Advanced students may consider adding an additional 3 credit core curriculum course in their first semester to accelerate their progress.

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<td>MSCI 302/L</td>
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<td>CHEM 111/L</td>
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<td>CHEM 112/L</td>
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<td>STAT 201/L</td>
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Note: Students must earn a C or better in MATH 160B before registering for PHYS 211/L.

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<tbody>
<tr>
<td>MSCI 305/L</td>
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<td>HIST 201 or POLI 201</td>
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<tr>
<td>PHYS 211/L</td>
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<td>PHYS 212/L</td>
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<tr>
<td>MSCI/SCI upper level</td>
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Note: Students must earn a C or better in PHYS 212/L before registering for MSCI 301/L.

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<td>MSCI/SCI upper level</td>
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<td>MSCI/SCI upper level</td>
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# Marine Science "Degree in 3" Suggested Program Plan (Unofficial)

A suggested template for completing the Marine Science B.S. degree program in three years. The actual schedule may vary depending on individual circumstances.

A total of 36 credits of MSCI and other upper-level science must be completed (MSCI/SCI upper level). Of these, 24 credits must be from MSCI.

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**Note:** Students must place higher than MATH 130 or earn a C or better in MATH 130 before registering for BIOL 121/L, CHEM 111/L, MSCI 111/L or MSCI 112/L.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
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<tr>
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<td>UNIV 110</td>
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<td>Core Curriculum Class</td>
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<td>ENGL 101</td>
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<td>ENGL 102</td>
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<td></td>
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<tr>
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<td>MATH 160 (A&amp;B)</td>
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<td>BIOL 121/L</td>
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<td>BIOL 122/L</td>
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<td>Total: 38</td>
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</table>

|      | MSCI 302/L          | 4       | Core Curriculum Class       | 3       |
|      |                     |         |                             |         |
|      | MSCI 304/L          | 4       | Core Curriculum Class       | 3       |
|      | STAT 201/L          | 4       | HIST 201 or POLI 201        | 3       |
|      | CHEM 111/L          | 4       | CHEM 112/L                  | 4       |
|      | Foreign Language (115) | 5   | MSCI/SCI upper level        | 4       |
|      |                     |         | PHYS 211/L                  | 4       |
|      |                     | 17      |                             | 18      |
|      |                     |         | Total: 80                   |         |

|      | MSCI 305/L          | 4       | Core Curriculum Class       | 3       |
|      |                     |         |                             |         |
|      | PHYS 212/L          | 4       | MSCI 301/L                  | 4       |
|      | MSCI/SCI upper level | 4       | MSCI/SCI upper level        | 4       |
|      | Core Curriculum Class | 3   | MSCI/SCI upper level        | 4       |
|      | Core Curriculum Class | 3   | MSCI/SCI upper level        | 4       |
|      | MSCI/SCI upper level | 4       |                             |         |
|      |                     | 18      |                             | 16      |
|      |                     |         | Total: 121                  |         |
What does a marine science major study?

Marine Science at Coastal Carolina University is an interdisciplinary field where students receive diversified training in marine science by taking courses in marine biology, marine chemistry, marine geology, and physical oceanography. Upon completion of the core courses, students are encouraged to select an area of emphasis that may include: marine biology, coastal geology, marine analytical technology, marine/environmental chemistry or ocean/atmosphere dynamics.

Why study marine science at Coastal Carolina University?

- Coastal Carolina University has the largest undergraduate marine science program on the east coast.
- Department facilities include a lecture/laboratory complex, computer research labs and research vessels. The University also owns part of a pristine barrier island called Waties Island, used for course activities and student research, and houses the Burroughs & Chapin Center for Marine and Wetland Studies, where students and faculty work on a wide range of projects including coastal geology, watershed/environmental quality, and environmental education.
- Internship opportunities are available at sites such as Ripley’s Aquarium, Huntington Beach State Park, Myrtle Beach State Park, and other organizations across the nation.
- Off-site field courses for students include coral reef ecology held in Discovery Bay, Jamaica, and shark biology at the Bimini Biological Field Station in the Bahamas.
- Exchange programs provide an opportunity to spend a semester abroad at Deakin University in Australia or Plymouth College and Nene University in England.
- Students who are residents of Academic Common Market states (AR, KY, LA, MD, MS, OK, TN, VA and WV) and who are accepted as marine science majors may qualify for in-state tuition rates.

What are some career options for marine science majors?

Marine scientist for federal, state and local government agencies, and private industry
Environmental educator with aquariums, schools, parks, and tourism industries
- Teacher
- Scientific technician
- Land-use resource planner
- Aquarist/trainer
- University teacher/researcher
**What kind of courses do marine science majors take?**

Students will take introductory foundation courses in the sciences (including biology, calculus, chemistry, marine science, physics, and statistics); an upper-level course in each of the main sub-disciplines of marine biology, marine chemistry, marine geology and physical oceanography; and upper-level elective courses in an area of emphasis. Examples of upper-level elective courses include:

- MSCI 331 Introduction to Geographic Information Systems (GIS) & Remote Sensing
- MSCI 401 Environmental Chemistry
- MSCI 445 Coastal Processes
- MSCI 471 Biology of Marine Mammals
- MSCI 477 Ecology of Coral Reefs

For more information, please contact:
- Craig Gilman, Ph.D., Director of Undergraduate Programs, 843-349-2228 or gilman@coastal.edu
- Elizabeth Bischoff, Administrative Assistant, 843-349-2707 or ebischoff@coastal.edu

You can also find more information at [https://www.coastal.edumarine/](https://www.coastal.edu/marine/).