

# MARINE SCIENCE (PH.D.)

## Doctor of Philosophy (Ph.D.) in Marine Sciences

The Doctor of Philosophy (Ph.D.) Program in Marine Sciences is designed to provide formal coursework and advanced research in marine sciences that produces significant, original contributions to knowledge. The Doctor of Philosophy degree is awarded in recognition of the student's demonstrated ability to conduct original, scholarly research at the highest levels without extensive supervision. The degree is not granted upon completion of a stated amount of coursework, but rather after demonstration by the student of a comprehensive knowledge and research capability in a specialized field of study. The student must demonstrate this ability in writing and by defending a dissertation based upon the results of an original investigation. Earning a Ph.D. demonstrates a level of competence and accomplishment that enables graduates to pursue careers as marine science professionals in academia, industry, and government.

The Marine Sciences program offers courses and opportunities for research in multiple sub-disciplines: biological, chemical, physical, and geological oceanography as well as marine ecology, fisheries, and biogeochemistry. Each student receives formal training in these disciplines while concentrating in a specific research area.

## Minimum Requirements For Admission

Students are normally admitted in the Fall Semester. Although applications for admission and fellowships are accepted throughout the year, application before February 1 is encouraged; beginning February 15 the admissions committee will make initial recommendations about applicants for the following Fall class, with formal letters sent to applicants by the end of April. Depending on availability of space and funding, applications may be approved and students admitted throughout the year. In addition to the general admissions requirements of the Graduate School, requirements for admission to the Marine Sciences Ph.D. program are:

1. A narrative statement indicating the student's research interests, professional goals and commitment to full-time study for completion of degree requirements. It is highly encouraged that prospective students reach out to the faculty to discuss research interests. Most of our Ph.D. students are funded through grant-funded research assistantships. Thus, acceptance of new students may be a condition of available funding as well as matching students to faculty with new grant funded projects.
2. Three letters of recommendation.
3. For students with baccalaureate degrees:
  - a. A baccalaureate degree in a discipline related to marine sciences (e.g., biology, chemistry, geology, physics) from an accredited four-year college or university.
  - b. Applicants to graduate programs in Arts and Sciences typically have a minimum GPA of at least a 3.0 on all undergraduate work. In exceptional cases, applicants may be considered with at least a 2.5 GPA on all undergraduate work, or at least a 2.75 GPA on the last 60 hours of undergraduate work.
4. For students with MS degrees:

- a. A. An MS degree in a discipline related to marine sciences (e.g., biology, chemistry, geology, physics) from an accredited college or university.
- b. A graduate minimum grade-point average of 3.0 overall.

5. International students must submit an official score of at least 71 on the Test of English as a Foreign Language (TOEFL), or equivalent score on computer administered tests.
6. The GRE score is not required for admission. You may optionally submit your GRE scores if you wish for them to be considered as part of your application to any graduate program in the Stokes School of Marine and Environmental Sciences, but this is not required. Individual faculty members may consider available GRE scores as part of a holistic evaluation of the candidates.

To ensure research compatibility between the student and the faculty in the marine sciences program, attention will be given to the statement of research interests. A faculty member will be asked to act as a mentor for the applicant based on the statement of interests and, if necessary, a personal interview. Through this process, the student's interests will be matched to the expertise available within the faculty. Moreover, the mentor may also be able to offer the student financial support if a stipend is not available. Students whose interests do not correspond to those of a particular faculty mentor or who have not identified a faculty member willing to serve as a mentor will not be admitted into the Ph.D. degree program in marine sciences.

## Degree Requirements Required Credit

A minimum of sixty (60) semester hours of approved graduate course credit is required. Details about the curriculum are given below.

### Transfer Credit

Graduate courses taken at another accredited university, such as for students with MS degrees in the same (or a closely related) subject as that of the Ph.D. program, may be considered in the Ph.D. plan of study up to a maximum of 30 semester hours. Only grades of "A" or "B" may be accepted as transfer credit. The student's mentor, in consultation with the Chair, and if necessary, the advisory committee, will evaluate transfer credit; the transfer credit is approved by the Dean of the Graduate School only after completion of a minimum of eight semester hours of graduate course work in the doctoral program at USA.

## Residence, Full-time Study, and Continuous Registration

A minimum of two (2) consecutive semesters of full-time study in residence is required. The residency requirements may be met at USA or the Dauphin Island Sea Lab. Students are considered full-time if registered for six (6) or more hours during fall and spring semesters. Students must be registered continuously, i.e., every semester (fall, spring, and summer), during their program.

Employment other than University activities directly associated with graduate study is not allowed during full-time study, unless specifically approved by the Chair.

### Time Limit

All requirements for the Ph.D. degree must be completed within five years from the date of matriculation. A student who has not satisfactorily completed a dissertation in an five-year period must apply for a defined extension to complete the degree. This request must be recommended by

the major professor, the Chair of the Department, the Director of Graduate Studies, and approved by the Dean of the Graduate School.

Failure to complete the work within the periods specified shall necessitate reevaluation of the student's program and may result in a recommendation for dismissal by the Director of Graduate Studies to the Graduate Dean.

## Curriculum

All students must have formal course work in three (3) of the following general areas of marine sciences; physical, chemical, geological, or biological oceanography. This requirement is met by completion of three core courses, representing twelve (12) credit hours.

### Coursework

The required three (3) core courses are each four (4) semester hours. In addition, two (2) semester hours of seminar (two, one (1) semester hour enrollments) and a minimum of twelve (12) dissertation hours are required. Dissertation hours are taken after completion of the student's research prospectus (described below), which is due within 1.5 years of matriculation.

The remaining course work will be determined by the student's advisory committee and may include marine sciences or other graduate electives, directed studies, and dissertation hours. No more than eighteen (18) hours of dual-listed courses (400- and 500- level listing for the same course) may be counted toward meeting the minimum hours required. Graduate students will only receive graduate credit for the 500-level version of dual-listed courses.

Code	Title	Hours
<b>Core Courses (Take 3 or 4)</b>		<b>12</b>
MAS 601	Physical Oceanography	
MAS 602	Chemical Oceanography	
MAS 603	Geological Oceanography	
MAS 604	Biological Oceanography	
<b>Seminar</b>		<b>2</b>
Two enrollments in seminar, one hour per semester		
<b>Dissertation</b>		<b>12</b>
1-5 hours per semester, minimum requirement is 12 hours and maximum that may be applied to the 60 hour total is 15		
<b>Minimum Number of Hours for Electives, Directed Studies, and Additional Dissertation</b>		<b>34</b>
<b>Electives</b>		
Select Marine Sciences or other electives (500 or 600 level courses) as determined by advisory committee		
<b>Directed Studies</b>		
Maximum of eight (8) hours		
<b>Total Hours</b>		<b>60</b>

- Minimum of 60 hours
- Grades of "B" or better in core courses

## Research Prospectus

Beyond beginning coursework, the first milestone is to develop a written research prospectus in consultation with a dissertation advisory committee. The research prospectus is a document that lays out the student's rationale, methods, and objectives for their thesis research. It must include enough detail for the committee to evaluate both the novelty of the proposed work as well as the techniques needed to

achieve the research objectives. Students are expected to complete this task with 1.5 years of matriculation.

## Comprehensive Examinations

Written and oral examinations are required of all students seeking the Ph.D. degree in marine sciences. These examinations are given after completion of the core courses requirement and submission of the research prospectus. The written comprehensive examination is taken first and normally is more general in scope focusing on materials from core courses as well as the student's research area. The oral comprehensive examination may also address general knowledge in the student's discipline but is more focused on questions about the research prospectus. The examinations may be taken no more than twice.

## Candidacy

A doctoral student is admitted to candidacy after submitting a prospectus, passing both the written and oral comprehensive examinations, and completing all formal course work requirements. The doctoral candidate is a student who has fulfilled all preliminary requirements for the Ph.D. and has only completion of the dissertation research as the remaining requirement.

## Defense of Dissertation

The final oral defense of the dissertation is scheduled after the dissertation is written except for such revisions as may be necessary as a result of the defense. The final oral defense will not be given earlier than one semester after admission to candidacy and not before all required course work has been completed or is currently in progress.