

# Marine Science (MS) - Marine Conservation

## Degree Requirements

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### Master Of Science (M.S.) In Marine Conservation And Resource Management

The MS in Marine Conservation and Resource Management is designed to provide a formal course of training and professional development in the marine sciences that will enable students to contribute to the sustainable management of marine resources. The program does not require thesis research, but instead offers professional development through group projects and professional internships with government agencies, NGOs, and environmental consulting firms. The curriculum and other requirements can accommodate students currently in the workforce.

### Minimum Requirements For Admission

Applications for Fall admission are due by March 31 of each year. Enrollment normally begins in the fall semester; however spring admissions will be considered on a case by case situation. In addition to the general admissions requirements of the Graduate School, minimal requirements for admission in full standing to the MS Program in Marine Conservation and Resource Management are:

1. A baccalaureate degree in a discipline related to marine sciences (e.g., biology, chemistry, geology, physics, and engineering) or conservation biology (economics, sociology) from an accredited four year college or university.
2. 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.
3. A minimum score of 300 combined on the verbal and quantitative subtests of the Graduate Record Exam (GRE).

The applicant will be required to submit:

1. A completed application including a statement indicating the student's interests and professional goals.
2. Official transcripts from all undergraduate institutions attended.
3. Official scores from the Graduate Record Exam (General Test).

### Degree Requirements

The Master of Science degree in Marine Conservation and Resource Management is awarded in recognition of the student's demonstrated ability to successfully complete a prescribed program of courses. Students are not required to undertake original scholarly research (thesis), but instead complete a capstone project (see below).

### General

#### Required Credit

A minimum of thirty (30) semester hours of course credit beyond the baccalaureate degree is required for students pursuing an MS degree. Details about the curriculum are given as follows.

#### Transfer Credit

A maximum of twelve (12) semester hours of graduate courses taken at another accredited university in the same (or closely related) subject as that of the masters program may be considered as part of the MS degree requirements at USA. Only grades of "A" or "B" may be accepted as transfer credits. The Chair or Graduate Coordinator 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 MS program in marine conservation and resource management at USA.

Course work: All students must complete the four core courses of the program. At least two statistics courses will be required for the program. For students who have not had statistics courses as an undergraduate, ST 540 must be one of those courses taken. The remaining coursework (6 cr) requirement should be met through elective courses that are approved by the program coordinator.

Requirements	Course Title	Credit Hours
i. Core Curriculum Courses.		12
MAS 510	Essentials of Oceanography and Marine Biology	3 hrs
MAS 520	Marine Resource Management	3 hrs
MAS 521	Marine Conservation Biology	3 hrs
MAS 586	Marine Restoration Ecology	3 hrs
ii. Statistics (choose 2)		6
MAS 560	Marine Experimental Ecology	4 hrs
ST 540	Stats in Research	3 hrs
ST 550	Environmental Statistics	3 hrs
ST 560	Design of Experiments	3 hrs
iii. Seminars		2
MAS 592	Marine Science Seminar – Professional Development	1 hr
GIS 501	Responsible Conduct in Research/ Research Integrity	1 hrs
iv. Directed Studies		
MAS 594	Directed Studies	1-4 4
Ideally these directed studies classes should be taken in Fall – Semester Year 2 –Directed Studies -Part 1; and Spring Year 2- Directed Studies Part II- Project completion		
v. Electives		6
Two courses of which at least one must be outside MAS to fulfill interdisciplinary requirement of the program must be taken.		
a) MAS courses that may be used as electives		
MAS 604	Biological Oceanography	4 hrs
MAS 602	Chemical Oceanography	4 hrs
MAS 555	Fisheries Oceanography	2 hrs
MAS 551	Quantitative Methods in Fisheries in Ecology	3 hrs
MAS 603	Geological Oceanography	4 hrs
MAS 601	Physical Oceanography	3 hrs
MAS 581	Advanced Marine Ecology	2 hrs
MAS 583	Field Marine Sciences	2 hrs
MAS 584	Oceanographic Experiences	1-3 hrs
MAS 560	Marine Experimental Ecology	4 hrs
b) Non-MAS Electives		
CE 579	Fundamentals of Environmental Engineering	3 hrs
CH 514	Environmental Chemistry	4 hrs

SY 567	Environmental Sociology	3 hrs
PHA 643	Molecular and Cellular Toxicology	3 hrs
These courses represent suggested electives. Other graduate level courses offered at USA can be used to fulfill the elective requirement provided approval of the Program coordinator is received		
d. MAS 594 directed studies. Up to four credits of directed studies may be earned once a student completes their capstone project.		

A key element of the program is the capstone project. The project is intended to allow the student to develop professional scientific skills necessary to address the complex problems facing marine and coastal systems. Students will have three options to fulfill this requirement:

1. Group project (between 4—5 individuals). Using a team approach we will encourage most of the incoming students to work as small "think tanks" to resolve a pressing local or regional conservation or resource management problem. State, Federal and NGO agencies will be solicited for project ideas (1-2 page idea). The student group will then select from the project ideas. Through synthesis of existing literature as well as new analyses of existing data, students will develop a strategy to address the issues. Each student group will develop and maintain a project website and allocate writing and presentation task equally among the group (the group will be supervised by a faculty member).
2. Students not able to participate in the Group project may design, with the help of the program coordinator an internship with a state/federal/ngo agency or in a research lab (including USA and DISL researchers). During the internship the student, with the help of a mentor and the program coordinator, will design a project to resolve a problem related to conservation and/or resource management. The internship should result in a paper of modest length (about the length of a journal article) and a formal presentation to the faculty. The Group projects and internships must be design to be completed in two semesters (during the second year).
3. Students may also complete the cap stone requirement by earning a professional certificate in a technical skill. For example a Geographical Information Systems (GIS) certificate.

### Time Limit

All requirements for the MS degree must be completed within five years from the date of matriculation. A student who has not satisfactorily completed a M.S. degree in a five-year period must apply for a defined extension to complete the degree. This request must be recommended by a major professor, the Chair, the Director of Graduate Studies, and approved by the Dean of the Graduate School. If the student does not complete the degree requirements in the defined extension period, the Director of Graduate Studies may recommend, and the Dean of the Graduate School may take, whatever action is necessary up to and including dismissal.

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

## Department Information

[Department of Marine Sciences website](http://www.southalabama.edu/marinesciences)  
<http://www.southalabama.edu/marinesciences>

### Undergraduate Minor In Marine Sciences

Seventy percent of the Earth's surface is occupied by oceans. This dominance means that oceans exert a major influence on atmospheric dynamics and terrestrial ecology. The societal and economic importance of healthy ocean ecosystems cannot be overstated or ignored. The Department of Marine Sciences welcomes qualified students who wish to better focus their academic training towards oceanography and marine biology. The undergraduate minor in marine sciences is designed to complement many science and non-science majors offered at USA. Ocean-related science is relevant to many contemporary environmental issues and problems and central to understanding earth-system evolution, dynamics, climate and sustainability. The minor consists of courses and research opportunities offered primarily by faculty and researchers in the Department of Marine Sciences and the Dauphin Island Sea Lab.

Requirements for a Minor in Marine Sciences include a minimum of 18 hours in Marine Sciences related classes. The student must take MAS 134 Ocean Science, MAS 134L Ocean Science Lab, MAS 331 Marine Sciences I and MAS 332 Marine Science II. In addition to these core requirements, students must take 2-3 electives courses (MAS 371, MAS 367, MAS 430, MAS 451,

MAS 471, MAS 475 or other electives approved by the Chair). Up to 6 hours required by a student's major may be applied toward the minor. The Marine Science minor places a strong emphasis on a rigorous natural science foundation; thus, several of the upper division courses related to the minor have prerequisites. Students planning the minor should check catalog course descriptions carefully and should meet with advising staff in the Marine Science Program office.

## **Master Of Science (M.S.) In Marine Sciences**

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The Master of Science (M.S.) Program in marine sciences is designed to train and prepare superior students for a career in this field. The marine sciences program offers courses and opportunities for research in four main areas: biological, chemical, physical, and geological oceanography. Each M.S. student receives formal training in at least three of these disciplines while concentrating in a specific research area. Thus, the program is structured to develop the capacity for productive and innovative research, founded on a solid background of broad scientific knowledge. The requirements and procedures that follow are specifically for the Department of Marine Sciences. However, the general rules and policies of the Graduate School also apply.

### **Minimum Requirements For Admission**

Application before January 15 is encouraged; beginning February 1, the admission committee will make initial recommendations about applicants for the following Fall class, with formal letters sent to applicants by the end of April. Although students are normally admitted in the Fall Semester, 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, minimal requirements for admission in full standing to the Marine Sciences M.S. Program are:

1. A baccalaureate degree in marine sciences or in a discipline related to marine sciences (e.g., biology, chemistry, geology, physics) from an accredited four year college or university
2. 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.
3. A minimum score of 300 combined on the verbal and quantitative subtests of the Graduate Record Exam (GRE)

The applicant will be required to submit:

1. A completed application including a statement indicating the student's interests and professional goals
2. Official transcripts from all undergraduate institutions attended
3. Three letters of recommendation
4. Official scores from the Graduate Record Exam (General Test)

Assessment of credentials will be supplemented by evaluation of letters of recommendation and the educational background of the student. Foreign applicants will be required to pass the TOEFL exam with a score of 71 or greater, or equivalent score on computer administered tests.

To insure compatibility between the student's research interests and the faculty expertise in the Marine Sciences Department, particular attention will be given to the statements of research interests. A faculty member will be asked to act as a "mentor" for the applicant based on the statement of interest 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 also may be able to offer the student financial support if a departmental stipend is not available. Students whose interests do not correspond to those of a faculty member and/or have not identified a faculty willing to serve as a mentor, will not be admitted into the M.S. degree program in marine sciences.

Application forms for admission can be found at <http://www.southalabama.edu/departments/admissions/>. Applications for fellowships (see below) are obtained by writing to: Chair, Department of Marine Sciences, University of South Alabama, Mobile, AL 36688-0002 or visit the website at <http://www.southalabama.edu/marinesciences>

### **Fellowships And Assistantships**

The Department of Marine Sciences offers a variable number of research assistantships that are sponsored by externally funded grants and contracts. The current stipend for M.S. students is \$17,000 per year. Additional funding for tuition fellowship may also be available through extramural grants. Information about assistantships is available from the Office of the Dean of the Graduate School, Administration Building Room 340, University of South Alabama, Mobile, AL 36688-0002.

## **Master Of Science (M.S.) In Marine Conservation And Resource Management**

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The program does not require thesis research, but instead offers professional development through group projects and professional internships with government agencies, NGOs, and environmental consulting firms. The curriculum and other requirements can accommodate students currently in the workforce.

### **Minimum Requirements For Admission**

Applications for Fall admission are due by April 15 of each year. Enrollment normally begins in the fall semester; however spring admissions will be considered on a case by case situation. In addition to the general admissions requirements of the Graduate School, minimal requirements for admission in full standing to the M.S. Program in Marine Conservation and Resource Management are:

1. A baccalaureate degree in a discipline related to marine sciences (e.g., biology, chemistry, geology, physics, and engineering) or conservation biology (economics, sociology) from an accredited four year college or university
2. 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.
3. A minimum score of 300 combined on the verbal and quantitative subtests of the Graduate Record Exam (GRE)

The applicant will be required to submit:

1. A completed application including a statement indicating the student's interests and professional goals
2. Official transcripts from all undergraduate institutions attended
3. Official scores from the Graduate Record Exam (General Test)

### **Doctor Of Philosophy (Ph.D.) Program**

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The Doctor of Philosophy (Ph.D.) Program in marine sciences is designed to provide formal course work and advanced research in marine sciences that produces significant, original contributions to knowledge. The Ph.D. degree is awarded to students who have reached and formally demonstrated a level of competence and accomplishment that enables them to pursue careers as marine science professionals. The Ph.D. degree confers eligibility for many positions 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 and fisheries. Each student receives formal training in each of these disciplines while concentrating in a specific research area. The requirements and procedures that follow are specifically for the Department of Marine Sciences. However, the general rules and policies of the Graduate School also apply.

### **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
2. Three letters of recommendation
3. For students with baccalaureate degrees:
  - a. Official scores from the Graduate Record Examination General Test with a minimum score of 300 combined on the verbal and quantitative subtests
  - b. A baccalaureate degree in a discipline related to marine sciences (e.g., biology, chemistry, geology, physics) from an accredited four-year college or university
  - c. 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 M.S. degrees:
  - a. An M.S. 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 3.00 overall (A=4)

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

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, and 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.

Application forms for admission to the program and for fellowships (see below) are obtained by writing to: Chair, Department of Marine Sciences, University of South Alabama, Mobile, AL 36688-0002.

### **Fellowships And Assistantships**

The Department of Marine Sciences offers at-large fellowships to Ph.D. students annually on a competitive basis. In addition, there are a variable number of doctoral assistantships that are sponsored by externally funded grants and contracts to faculty. The current stipend for Ph.D. fellowships is \$20,000 per year plus a tuition fellowship and waiver of out-of-state fees. Prospective students must submit applications by February 1 to receive consideration for at-large fellowships. Information about assistantships is available from the Office of the Dean of the Graduate School, Administration Building Room 340, University of South Alabama, Mobile, AL 36688-0002.