

# Marine Sciences (BS)

## Degree Requirements

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### General Education Requirements (53-57 Hours)

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#### Area I – Written Composition (2 Courses, 6 Hours)

- A. 3 hours: EH 101
- B. 3 hours: EH 102

#### Area II – Humanities & Fine Arts (5 Courses, 15 Hours)

No more than six hours from any one discipline.

- A. 3 hours: CA 110
- B. 3 hours from: EH 215, EH 216, EH 225, EH 226, EH 235, EH 236
- C. 3 hours from: ARH 100, ARH 103, ARH 123, ARS 101, DRA 110, MUL 101
- D. 6 hours from: AFR 101, ARH 100, ARH 103, ARH 123, ARH 203, ARS 101, ARS 121, ARS 123, ARS 124, CLA 110, DRA 110, EH 215, EH 216, EH 225, EH 226, EH 235, EH 236, JHS 101, JOU 252, GS 101, IST 105, LG 173, LG 201, LG 202, LG 211, LG 212, LG 213, LG 221, LG 222, LG 231, LG 232, LG 241, LG 242, LG 251, LG 252, LG 271, LG 272, LG 273, LGS 201, LGS 202, LGS 206, LGS 207, LGS 210, LGS 211, LGS 271, LGS 272, MUL 101, PHL 110, PHL 120, PHL 121, PHL 131, PHL 220, PHL 231, PHL 240, REL 100, REL 200, REL 201

#### Area III – Natural Sciences & Mathematics (3 Courses & Labs, 11-14 Hours)

- A. 3-4 hours from: MA 110, MA 112, MA 113, MA 115, MA 120, MA 125, MA 126, MA 227, MA 237, MA 238
- B. 8-10 hours from: AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO 102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L

#### Area IV – History, Social & Behavioral Sciences (4 Courses, 12 Hours)

No more than six hours from any one discipline.

- A. 3 hours from: HY 101, HY 102, HY 121, HY 122, HY 135, HY 136
- B. 9 hours from: AN 100, AN 101, CA 100, CA 211, CJ 105, ECO 215, ECO 216, GEO 114, GEO 115, GS 101, HY 101, HY 102, HY 121, HY 122, HY 135, HY 136, IS 100, IST 201, NAS 101, PSC 130, PSY 120, PSY 250, SY 109, SY 112

#### Area V – (3 Courses, 9-10 Hours)

- A. Foreign Language. 6 hours from any one group:

LG 101 & LG 102, LGS 106 & LGS 107, LGS 110 & LGS 111, LG 111 & LG 112 or proficiency test or LG 113, LG 121 & LG 122, LG 131 & LG 132 or proficiency test or LG 134, LG 141 & LG 142, LG 151 & LG 152 or proficiency test or LG 153, LG 171 & LG 172 or LG 173, LGS 171 & LGS 172

Students may fulfill the foreign language requirement by passing a proficiency test offered by the Department of Modern and Classical Languages at the level equivalent to the second semester of the foreign language sequence, or by passing another test (e.g., AP (Advanced Placement) or CLEP (College Level Examination Program) at the equivalent level).

Students who pass a proficiency test at the level equivalent to first semester of the foreign language sequence are required to complete only the second semester and will fulfill the foreign language requirement with 3 credit hours of course work.

- B. Natural Sciences/Math. 3-4 hour lab science or math/stat course from:

AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L,

GEO 102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L, ST 210, MA 113- 299 (except 201 and 202).

Students must complete a 6 credit hour sequence either in literature (Area II – EH 215 & EH 216, EH 225 & EH 226, or EH 235 & EH 236) or history (Area IV – HY 101 & HY 102 or HY 135 & HY 136 or HY 121 & HY 122).

All undergraduates must complete two designated writing credit (W) courses, at least one of which must be in the student's major or minor.

### Major Requirements (37 Hours)

- A. 27 hours: MAS 134 & MAS 134L, MAS 331 & MAS 331L, MAS 332 & MAS 332L, MAS 36, MAS 337 & MAS 337L, MAS 475 & MAS 475L, MAS 431 & MAS 431L
- B. 10 hours from (Take 3 courses total minimum 10 hours): MAS 371, MAS 367, MAS 430, MAS 451, MAS 471, MAS 476,
- C. Additional Courses Required by the Department includes 16 credits hours of general education courses (MA 125, BLY 121 & BLY 121L, BLY 122 & BLY 122L, CH 131 & CH 131L, CH 132 & CH 132L, PH 114 & PH 114L OR PH 201 & PH 201L)

PH 231L is suggested as one of the Area II general education requirements

\*\*Assumes students will pass placement tests for MA 125.

### Minor Requirements (18-24 Hours)

A minor is required for this degree program. Students may satisfy a Composite Science minor by completing the major additional course requirements plus either PH 115 & PH 115L or PH 202 & PH 202L, or GY112 & GY 112L

### Additional Information

\*Note: up to six (6) credits can be shared within the Major and Minor.

## Graduation Plan

### Marine Sciences (BS) : (39 Total Hours)

#### First Year - Fall Semester

Course ID	Course Description	Hours
CAS 100	First Year Experience - College Success	2
EH 101 (Gen Ed)	English Composition I	3
CH 131/ CH 131L (Gen Ed)	General Chemistry I with lab	4
BLY 121/BLY 121L	General Biology I with lab	4
MA 125	Calculus I	4
Total Hours		17

**First Year - Spring Semester**

Course ID	Course Description	Hours
MAS 134/ MAS 134L	Ocean Sciences with lab	4
EH 102 (Gen Ed)	English Composition II	3
CH 132 /CH 132L (Gen Ed)	General Chemistry II with lab	4
BLY 122/BLY 122L	General Biology II with lab	4
	Total Hours	14

**Second Year - Fall Semester**

Course ID	Course Description	Hours
History (US or West. Civ.) (Gen Ed)		3
MAS 331/ MAS 331L	Marine Sciences I Lecture with lab	4
English Literature (Gen Ed)		3
PH 114/PH 114L	Physics I with lab	4
	Total Hours	15

**Second Year - Spring Semester**

Course ID	Course Description	Hours
Fine Arts Elective		3
CA 110 (Gen Ed)	Public Speaking	3
Humanities Elective *PH 231 (Gen Ed)	Social Ethics	3
MAS 332/MAS 332L	Marine Sciences II Lecture with lab	4
	Total Hours	13

**Third Year - Fall Semester**

Course ID	Course Description	Hours
Foreign Language I (Gen Ed)		3
Social/Behavioral Elective (Gen Ed)		3
Humanities		3
Minor		3
	Total Hours	12

**Third Year - Spring Semester**

Course ID	Course Description	Hours
MAS 336	Marine Operations and Research	3
MAS 475/MAS 431L	Marine Ecology with lab	4
MAS 431/MAS 431L	Field and Lab Measurements in Marine Science with lab	4
MAS 337/MAS 337L	Marine Geology with lab	4
	Total Hours	15

**Third Year - Summer Semester Dauphin Island Sea Lab Courses**

(\*Student may take a DISL summer course during Second year summer to lighten load during Third Year Summer)

Course ID	Course Description	Hours
MAS 451	Marine Vertebrate Zoology (summer #1 session)	4
MAS 476	Marine Tech Methods (Maymester)	2
MAS 471	Marine Invertebrate Zoology (summer #2 session)	4
	Total Hours	10

**Fourth Year - Fall Semester**

Course ID	Course Description	Hours
Minor		3
Social/Behavioral Elective (Gen Ed)		3

Minor	3
Minor	3
Total Hours	12

#### Fourth Year - Spring Semester

Course ID	Course Description	Hours
Foreign Language II (Gen Ed)		3
Minor		3
Minor		3
Social/Behavioral Elective (Gen Ed)		3
Total Hours		12

#### Notes

\*\*See Degree Requirements

## Department Information

School of Marine and Environmental Sciences website  
<http://www.southalabama.edu/colleges/artsandsci/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 School of Marine and Environmental 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 School of Marine and Environmental 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.

### Bachelor Of Science (B.S.) In Marine Sciences

The School of Marine & Environmental Sciences offers a Bachelors in Marine Sciences to address society's growth need for specialized understanding of the marine environment. This program is designed to prepare students for tackling challenges and opportunities presented by the "Blue Economy". The "Blue Economy " encompasses a broad range of job opportunities related

to the marine environment allowing graduates to pursue careers in government, academic, commercial and industrial settings. The degree program takes advantage of the location of the University South Alabama as well as its partnership with the Dauphin Island Sea Lab , DISL, to provide a unique educational experience as well as experiential learning opportunities. This degree program takes advantage of the location of the University South Alabama as well as its partnership with the Dauphin Island Sea Lab , DISL, to provide a unique educational experience as well as experiential learning opportunities. These institutional locations give students direct access to the natural marine laboratories of the Mobile Tensaw Delta, Mobile Bay, and the Gulf of Mexico where students will be immersed in all things marine! A cornerstone of this program is the Semester by the Sea at DISL where students in this program will spend their spring semester of junior or senior year taking coursework at DISL with the option of living in residence at DISL.

### **Core Courses**

The Marine Science core courses are as follows: MAS 134 and MAS 134L Introduction to Ocean Sciences, MAS 331 and MAS 331L Marine Sciences I: Geological & Physical Oceanography, MAS 332 and MAS 332L Marine Science II: Chemical & Biological Oceanography, Dauphin Island Sea Lab Summer Course Electives (e.g. Shark and Ray Biology, Marine Technical Methods, Marine Vertebrate Zoology, Marine Invertebrate Zoology, and more), and courses in residence at DISL during the spring semester of a student's junior or senior year: Marine Operations and Research (Capstone Course), Marine Geology, Marine Ecology, and Field and Lab Measurements in Marine Science.

### **Bachelor Of Science (B.S.) In Environmental And Sustainability Sciences**

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The School of Marine & Environmental Sciences, SOMES, offers a Bachelor's program in Environmental Science & Sustainability to address the need for a broad understanding of the natural world and its interaction with the demands of human development.

A fundamental component of environmental science is its interdisciplinary essence and how this integrative approach can be used to develop mutually beneficial solutions to some of society's most pressing challenges. The Environmental Science & Sustainability degree program is designed to provide a foundational knowledge base coupled with specialized skills so that students will be able to immediately begin addressing environmental issues in sustainable ways. A major goal of this program is to provide a workforce that will be trained to address the inevitable environmental pressures that coastal communities are, and will be, facing as global warming continues to accelerate. Students that complete the undergraduate degree program will be prepared to conduct analysis and mitigation of environmental problems in a range of fields (e.g. sustainability, renewable energy, conservation, agriculture, urban planning and development, natural resource management, education, environmental toxicology, etc.) and employers (e.g. environmental consulting firms, health and safety field (HAZMAT), non profit agencies, research labs, education and outreach, government agencies: AL Department of Environmental Management, EPA, Fish and Wildlife Service, Bureau of Land Management, Forest Service, etc.).

### **Core Courses**

Students will take the following course courses: ENV 337 and ENV 337L Environmental Science I, ENV 338 and ENV 338L Environmental Science II, ENV 339 Climate Change, ENV 340 Fundamentals of Environmental Toxicology & Chemistry, ENV 334 and ENV 334L Environmental Monitoring and Assessment, ENV 335 and ENV 335L Environmental Conservation & Sustainability, GY 425 Hydrology, GIT 460 Intro to Geographic Information Technology, and BEO 410 Biogeography.

### **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 School of Marine and Environmental Sciences, 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 for admission can be found at <https://universityofsouthalabama2022.liasoncas.com/applicant-ux/#/login>

### **Fellowships And Assistantships**

The School of Marine and Environmental 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**

The M.S. 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 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 for admission to the program can be found at the following link:

<https://universityofsouthalabama2022.liasoncas.com/applicant-ux/#/login>

### Fellowships And Assistantships

The School of Marine and Environmental 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.