



**Bachelor of Science  
MARINE BIOLOGY  
2016 – 2017**

UMM’s location is ideal for courses related to marine biology, ecology, and mariculture. Students have direct access to inter-tidal and sub-tidal marine habitats and organisms, finfish and shellfish aquaculture sites and hatcheries, and commercial fishing ports. This access to marine environments gives UMM students unique field and laboratory experiences. All students in the Marine Biology major are required to complete 82-85 credits of program requirements.

**Program Goals**

- To provide a rich and rigorous undergraduate experience in marine biology that focuses on the biological, social, and historic uniqueness of our geographic setting.
- To provide students an opportunity to enhance their analytical and communication skills through independent study or senior thesis.
- To provide students with access to mariculture or other marine-based industries to enhance their competitive advantage in the job market.
- To prepare students to think critically at all junctures of their academic and work-related careers.
- To provide rigorous training for students planning to further their education in professional studies or graduate school.

**General Requirements**

All University Core requirements must be met, in addition to the program requirements. Note that completion of some courses within the major, such as mathematics, will also fulfill Core requirements. Students must earn a minimum of 120 credits and achieve a cumulative GPA of at least 2.00.

A minimum cumulative Grade Point Average (GPA) of 2.00 in the program requirements is necessary for graduation. This GPA must be achieved by the completion of a total of 60 credits. If the student fails to maintain this average in subsequent semesters, a warning may be issued. The student may lose matriculated status if the average remains below 2.0 after the completion of another 12 credits. A student may petition to be readmitted to the program.

<b>Program requirements</b>	<b>55-58 credits</b>
BIO 117 This is Life!	4
BIO 118 Animal Life	2
BIO 119 Plant Life	2
BIO 206 Introduction to Marine Biology	4
BIO 245 General Ecology	4
BIO 227 Invertebrate Zoology	4
BIO 352 Algal & Marine Plant Ecology	4
BIO 353 Genetics	4
BIO 360 Marine Ecology	4
BIO 315 Experimental Design & Analysis for Biologists	4

*Select one of the following:* 3-6

- BIO 482 Senior Seminar in Marine Biology
- BIO 460 Seminar in Marine Ecology
- BIO 401-3 Senior Thesis in Biology
- BIO 404-6 Senior Thesis in Biological Research

CHY 101	General Chemistry I	4
CHY 102	General Chemistry II	4
ENV 103	Oceanography	4
MAT 215	Applied Statistics	4

**Ecological and Organismal 11-12 credits**

*Select 11-12 credits from:*

- BIO 212 Ornithology 4
- BIO 216 Mammalogy 4
- BIO 221 General Microbiology 4
- BIO 223 Marine Mammals & Pelagic Birds 4
- BIO 313 Ichthyology 4
- BIO 375 Population & Community Ecology 3
- Select one of the following:* 4

BIO 310 Special Topics in Mariculture

BIO 332 Introduction to Mariculture

COE 305 Internship in Science (in Mariculture)

**Select 15-16 credits from the following groups: 15-16 credits**

*No more than 8 credits may come from Management and Technology. A minimum of 8 credits must come from Research and Graduate Preparatory.*

**Management and Technology 0-8 credits**

BIO 355	Conservation Biology	4
CHY 234	Environmental Chemistry I	4
CHY 311	Analytical Chemistry	4
GEY 111	Physical Geology	4
GIS 230	GIS Applications I	4
GIS 330	GIS Applications II	4
MTR 101	Meteorology	4

**Research and Graduate Preparatory 8-16 credits**

CHY 221	Organic Chemistry I	4
CHY 222	Organic Chemistry II	4
CHY 322	Biochemistry	4
MAT 126	Calculus I	4
MAT 127	Calculus II	4
PHY 111	Physics I	4
PHY 112	Physics II	4