Marine Biology
MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

Program Description
The Marine Biology Program is designed for students with an interest in one or more of the subdisciplines of marine biology and who wish to pursue careers in higher education, government, or private industry. This unique, interdisciplinary degree program (IDP) combines the strengths of various departments at three universities within the Texas A&M University System: Life Sciences at Texas A&M-Corpus Christi (TAMU-CC), Marine Biology and Marine Sciences at Texas A&M University at Galveston (TAMU-G), and Wildlife and Fisheries Sciences, Oceanography and Biology at Texas A&M University (TAMU). Students can choose courses from any campus and form committees with any of the participating faculty. Advantages of the interdisciplinary degree format for Marine Biology students include a diverse, internationally recognized faculty with high scholarly productivity and extramural funding, as well as two campuses strategically located on the Gulf of Mexico.

The Marine Biology program offers the Master of Science and the Doctor of Philosophy degrees in Marine Biology. A personalized graduate advisory committee guides each student through the conception, design, construction, and execution of a marine biology-based inquiry.

Student Learning Outcomes
As part of their progression through the Marine Biology Program, Doctor of Philosophy students will:

• Possess a broad understanding of marine biology
• Acquire skills necessary for marine biological science studies
• Perform original and hypothesis-driven scholarly research grounded in marine biological concepts
• Develop the skills necessary to present and publish their work at national and international venues
• Develop a skill set and research record such that they can secure employment in universities, federal agencies, private companies or non-governmental organizations where they can apply the skills and knowledge acquired during the program

As part of their progression through the Marine Biology Program, Master of Science students will:

• Possess a broad understanding of marine biology
• Possess enhanced knowledge of a specific marine biological field including relevant scientific literature related to their thesis or professional paper
• Understand the scientific method and be able to design and conduct experiments.
• Be able to accurately describe (orally and in writing) marine biological research
• Develop a skill set such that they can secure employment in federal agencies, private companies, or non-governmental organizations where they can apply the skills and knowledge acquired during the program

Admission Requirements
Persons seeking admission to the Marine Biology Program should apply through the university Office of Graduate Studies and Research. In addition to the documents required by that office, applicants must submit an essay of no more than 1,000 words describing their educational and career goals, and interests as they relate to the faculty in the Marine Biology Program; a list of names of faculty members contacted; three letters of evaluation from people familiar with their potential for graduate studies; transcripts of all previous undergraduate/graduate work; and Graduate Record Examination (GRE) scores that are not more than 5 years old. Additional requirements exist for international students, including TOEFL scores.
from ETS taken within the last two years for students from countries where English is not the native language, and a course by course foreign transcript evaluation through an approved service (refer to the Admission section of this catalog). All relevant supplemental materials (such as publications or resumes that include information about relevant experiences) that are submitted with the application will be considered. Send application documents to the Office of Graduate Studies and Research. A campus visit including personal interviews with prospective faculty mentors is highly recommended.

Completed applications must be received by the Office of Graduate Studies and Research by the specified priority deadlines:
- Fall Semester - February 1
- Spring Semester - June 1

Incomplete applications are not considered. The applicant will be notified of acceptance or rejection by letter.

Teaching assistantships, graduate research assistantships, and fellowships may be available to admitted degree-seeking students who maintain full-time graduate student status (9 hours/fall and spring semester, and 3 hours/summer). The completed Teaching Assistant Application (forms available at http://www.sci.tamucc.edu/stweb/ta/index.html) and all other materials requested for evaluation should be submitted to the office indicated on that form. For full consideration, the deadline for submitting applications is February 1 for the following academic year. A limited number of fellowships are available, and faculty members conducting funded research projects often hire qualified graduate students as Research Assistants. Students will need to contact faculty members in their field of interest for information on these opportunities.

Non-degree students may enroll in courses for which they have adequate academic preparation, but they may not apply more than nine credit hours of work taken in non-degree status to a graduate degree program. Non-degree students must consult with the Marine Biology Program Coordinator to determine those courses in which they may enroll and those courses they may later apply to a Marine Biology degree, should they be admitted into the program. Students must earn a grade of “B” or better in each of the prescribed courses in order to have the courses apply to the plan of study.

**Academic Preparation**

Students entering the Marine Biology Program are expected to have a strong background in biological and physical sciences, with competencies equivalent to those required of Texas A&M University-Corpus Christi undergraduate biology majors (see the biology section of the undergraduate catalog). Therefore, a student who lacks adequate academic preparation in a particular subject area, but who is otherwise well-qualified to enter the graduate program, may be required to complete appropriate undergraduate course work in addition to that specified for the graduate degree. Such courses (4000-sequence or lower) are regarded as foundation or leveling work and do not count as credit towards the total required for completion of the graduate degree.

**Advising and the Graduate Advisory Committee**

After admission to the graduate program, the Marine Biology Program Coordinator will advise the student in all matters relating to degree requirements and procedures until a formal Graduate Advisory Committee (GAC) is formed. By the end of the first semester of graduate study, a student will select a GAC whose members should represent the student’s field of study. The GAC including the advisor(s)/Chair(s) consists of no fewer than three members for M.S. students and no fewer than four members for Ph.D. students. The Chair (or one Co-Chair) of the GAC must be a member of the Marine Biology graduate faculty. Recognized scholars who are not members of the Marine Biology Participating Graduate Faculty may serve as Adjunct Members following nomination and approval by Marine Biology faculty and the Office of Graduate Studies and Research. Additional committee members may also be added as “Special Appointments” by submitting a letter of request.
from the advisor, through the TAMU-CC Marine Biology Program Coordinator. The GAC will advise the student in all matters pertaining to graduate requirements and procedures, and (together with the student) will develop a personalized Degree Plan (including foundation or leveling work). After the student’s GAC approves the degree plan, it will be submitted to Marine Biology Program Coordinator who will forward it to the Chair of the Department of Life Sciences and the Dean of the College of Science and Technology for approval.

**Enrollment Requirements**

All students are required to maintain continuous registration until completion of all requirements for graduation unless a specific leave of absence is granted (in writing) by the department. Students funded through scholarships, fellowships and assistantships are required to maintain a minimum number of credit hours per semester. These requirements are detailed in the Graduate Catalog, but students holding assistantship/fellowships must be enrolled as a full-time student (9 hours/fall and spring semester, and 3 hours/summer). To continue to maintain the proper number of hours after completing all formal coursework on the degree plan, a student may register for MARB 5940/6940 Project Research.

**Coursework and Research**

Courses and research for the graduate degrees can be taken from TAMU-CC, TAMU, or TAMU-G with the approval of the student's GAC. Students must demonstrate to the GAC that the selection of classes or research projects produces a coherent course of study focused on the student’s particular area of emphasis. Depending on the emphasis area, elective and specialized coursework selections may be chosen from biology, biomedical sciences, chemistry, coastal and marine system science, computer science, environmental science, geographic information science, geology, mariculture, mathematics, or other course offerings as stipulated and approved by the GAC.

A. **Elective, Specialized, and Topical Coursework**

The program specifies the minimum number of semester credit hours (SCH) that must be earned from regular, graded (non-research, non-variable credit) coursework: for students in the M.S. non-thesis option, 33 SCH; for students in the M.S. thesis option, 24 SCH; for Ph.D. students with only a bachelor’s degree, 41 SCH; and for Ph.D. students with an appropriate master’s degree, 19 SCH. Topical coursework is offered under the heading of MARB 5590/6590, Special Topics. Classes or research projects designated as part of the specialized coursework requirement must receive the approval of a student’s GAC.

B. **Research Coursework**

Three courses form the required research component of the degree for M.S. (thesis) and Ph.D. students: MARB 5292/6392 Thesis/Dissertation Proposal, MARB 5293/6393 Thesis/Dissertation Research, and MARB 5294/6394 Thesis/Dissertation Submission. For non-thesis M.S. students, the required research course is MARB 5397 (Directed Research). Once Ph.D. students have passed their qualifying exam and become degree candidates, they should take MARB 6940, and this course is graded credit/non-credit and may be repeated. Student must enroll in MARB 5294/6394 Thesis/Dissertation Submission during their last semester when thesis/dissertation will be completed.

**Doctoral Candidacy and the Comprehensive/Qualifying Examinations**

To be admitted to candidacy for the Marine Biology Ph.D. degree, a student must have a cumulative GPA and a degree plan GPA of at least 3.0, satisfy the residence requirement (completion of 9 credit hours in two consecutive long semesters) and pass formal Comprehensive/Qualifying Examinations (often referred to as “preliminary examinations”). The doctoral qualifying examination covers all areas within the scope of the student’s doctoral program, and usually involves written examinations from each GAC member, followed by an oral examination administered by the GAC as a whole. A student’s Comprehensive/Qualifying Examinations may be scheduled when he or she has completed all required leveling courses.
and is within approximately 6 hours of completing formal degree plan coursework (i.e., except Dissertation Project Research MARB 6940) but must be scheduled before the end of the semester following completion of regular coursework on the degree plan. A doctoral student must pass the comprehensive examination and be admitted to degree candidacy at least 1 year before the date of the final dissertation defense/oral examination. The Office of Graduate Studies and Research will not authorize a final dissertation defense/oral examination for any doctoral student who has not been admitted to candidacy.

**Format and Style of Professional Papers, Theses and Dissertations**

The non-thesis professional paper and thesis must follow format requirements established in the Marine Biology Graduate Handbook and must be approved and signed by the members of the student’s GAC, the Chair of the Department of Life Sciences and the Deans of the College of Science and Technology and Office of Graduate Studies and Research. The dissertation must be prepared in a standard format and style dictated by the GAC. Guidance can be found in the Marine Biology Student Handbook. For more information, consult the Office of Graduate Studies and Research.

Once the thesis/dissertation is completed and approved by the GAC, the results of the research must be presented orally and publicly. The final defense/oral examination usually takes place immediately following the seminar. Graduate students are expected to present their research at a scientific meeting (other than their graduate seminar) prior to graduation.

Upon approval by a student’s GAC, a copy of the thesis/dissertation will be sent to the Dean of Graduate Studies. At the time of successful completion of the thesis/dissertation exam, committee members will sign the thesis/dissertation and return it to the Dean of Graduate Studies for final approval and signature. See also “Requirements for Doctoral Programs” in the general section of this catalog.

**Final Defense**

Each student must pass a final defense examination during the last semester before graduation. The student’s GAC administers this examination which covers topics related to (1) all graduate coursework undertaken for the Marine Biology program, (2) the student’s specific research area, and (3) broad concepts of general and marine biology including familiarity with the literature and appropriate professional societies. The student is responsible for scheduling the defense with the faculty involved. A student who fails the defense may repeat it once, but only after an interval of four months or more. If a student fails the second defense, he or she will be terminated from the program. Both M.S. options require a final examination: students pursuing the thesis option may schedule the final examination after completion of all coursework and after at least the first draft of the thesis has been submitted to their GAC for review; non-thesis students may schedule the final examination after completion of all course work. Doctoral students must enroll in the course Dissertation Submission (MARB 6394) during the semester in which they are planning to defend their dissertation and/or graduate.

**Specific Degrees and Their Requirements**

**A. The Master of Science in Marine Biology**

The M.S. in Marine Biology is designed for graduate students who wish to become knowledgeable leaders and professionals with an in-depth education and specialized skills in the field. Students will develop a sense of creative independence that will allow them to practice in and contribute to a variety of professions and fields of scholarship. A student may request approval for transfer of a maximum of nine semester credit hours of graduate courses from other colleges to a M.S. in Marine Biology degree plan. For M.S. students, the program offers thesis and a non-thesis degree options (see below). Thesis students may change between the Thesis and Non-Thesis option at any time with the approval of the GAC. Specific option/degree requirements must be met. The following courses are required for all M.S. students:
1. **Non-Thesis Option**
   The non-thesis Master’s Degree is designed to provide a broad understanding of marine biology. The curriculum will especially benefit those individuals in professional employment who seek advancement or additional training to enhance their knowledge and skills. The student is required to write a professional paper based on work done in Directed Research (MARB 5397). The paper will be on a topic approved by the student’s GAC and will demonstrate the student’s ability in organization, data collection, and scientific writing. To graduate under the non-thesis degree plan, a student must complete a minimum of 36 graduate semester credit hours. The student will complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARB 5102 Graduate Research Seminar</td>
<td>2</td>
</tr>
<tr>
<td>MATH 5315 Statistical Methods of Research</td>
<td>3</td>
</tr>
<tr>
<td>MARB 5397 Directed Research</td>
<td>3</td>
</tr>
<tr>
<td>Elective, specialized, and topical coursework (see above)</td>
<td>28</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36</strong></td>
</tr>
</tbody>
</table>

2. **Thesis Option**
   The thesis Master’s Degree requires a thesis based upon original research conducted during the period that the student is enrolled at Texas A&M University-Corpus Christi. The research must include a review of relevant literature, a description of the results from original research on a topic approved by the GAC, statistical analysis when appropriate, and an appropriate discussion of the results. To graduate under the thesis degree plan, a student must complete a minimum of 32 graduate semester credit hours. The student will complete:

<table>
<thead>
<tr>
<th>Course</th>
<th>Sem. Hrs.</th>
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</thead>
<tbody>
<tr>
<td>MARB 5102 Graduate Research Seminar</td>
<td>2</td>
</tr>
<tr>
<td>MARB 5292 Thesis Proposal</td>
<td>2</td>
</tr>
<tr>
<td>MARB 5293 Thesis Research</td>
<td>2</td>
</tr>
<tr>
<td>MARB 5294 Thesis Submission</td>
<td>2</td>
</tr>
<tr>
<td>MATH 5315 Statistical Methods of Research</td>
<td>3</td>
</tr>
<tr>
<td>Elective, specialized, and topical coursework (see above)</td>
<td>19</td>
</tr>
<tr>
<td>Elective(s) or MARB 5940 Thesis Project Research</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32</strong></td>
</tr>
</tbody>
</table>

B. **The Doctor of Philosophy in Marine Biology**
   Students who earn a Ph.D. in Marine Biology typically find employment in teaching or research positions at universities, or in pure research applications at specialized institutions or governmental agencies. Students accepted to the Marine Biology Ph.D. program with an M.S. degree in an appropriate discipline are required to take fewer semester hours of credit than students accepted with only a bachelor’s degree.

1. **Ph.D. Students Admitted with Only a Bachelor’s Degree**
   Students accepted to the Marine Biology Ph.D. Program with only a bachelor’s degree (i.e., without an M.S. degree in an appropriate discipline) must complete a minimum of 96 semester hours of coursework and research.

<table>
<thead>
<tr>
<th>Course</th>
<th>Sem. Hrs.</th>
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</thead>
<tbody>
<tr>
<td>MARB 6102 Marine Biology Seminar</td>
<td>2</td>
</tr>
<tr>
<td>MARB 6436 Marine Ecological Processes</td>
<td>4</td>
</tr>
<tr>
<td>MARB 6392 Ph.D. Dissertation Proposal</td>
<td>3</td>
</tr>
<tr>
<td>MARB 6393 Ph.D. Dissertation Research</td>
<td>3</td>
</tr>
<tr>
<td>MARB 6394 Ph.D. Dissertation Submission</td>
<td>3</td>
</tr>
</tbody>
</table>
Select at least one of the following:  
CMSS 6303 Systems Analysis  
CMSS 6323 Experimental Design

Elective, specialized, and topical coursework (see above) 32  
MARB 6940 Project Research 46

Total 96

2. Ph.D. Students Admitted with a Master’s Degree
Students accepted to the Marine Biology Ph.D. Program with an M.S. degree in an appropriate discipline must complete a minimum of 64 hours of coursework and research.

Sem. Hrs.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Sem. Hrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARB 6102</td>
<td>Marine Biology Seminar (1cr/yr; 2 towards degree)</td>
<td>2</td>
</tr>
<tr>
<td>MARB 6436</td>
<td>Marine Ecological Processes</td>
<td>4</td>
</tr>
<tr>
<td>MARB 6392</td>
<td>Ph.D. Dissertation Proposal</td>
<td>3</td>
</tr>
<tr>
<td>MARB 6393</td>
<td>Ph.D. Dissertation Research</td>
<td>3</td>
</tr>
<tr>
<td>MARB 6394</td>
<td>Ph.D. Dissertation Submission</td>
<td>3</td>
</tr>
</tbody>
</table>

Select at least one of the following:  
CMSS 6303 Systems Analysis  
CMSS 6323 Experimental Design

Elective, specialized, and topical coursework (see above) 10  
MARB 6940 Project Research 36

Total 96

For Additional Information
Website: http://marinebiology.tamucc.edu  
Campus address: Science and Technology Building, Room 319; Phone (361) 825-2754  
Mailing address: Marine Biology Program, Unit 5800  
College of Science and Technology  
Texas A&M University-Corpus Christi  
6300 Ocean Drive, Corpus Christi, Texas 78412-5800

GRADUATE COURSES
Graduate standing is required for enrollment in 5000 and 6000-level courses. Exceptions can be made for outstanding undergraduate students with the Dean’s consent. For details, see “Graduate Study by Undergraduates” in the catalog section titled “Academic and Degree Requirements.” Weekly lecture and laboratory hours associated with each course are designated by (lecture:lab) following the semester hours when appropriate. The laboratory hours shown are instructional time. In most cases, additional laboratory time will be required to complete assigned work. Prerequisites for entry into a course are indicated, but may be waived with permission of the instructor.

Graduate Credit from other Disciplines and other Campuses
Graduate students in the M.S./Ph.D. Marine Biology program may take courses from other disciplines such as BIMS, BIOL, CHEM, ESCI, GISC, MARI, MATH and CMSS with approval from the student’s graduate committee or from the Marine Biology Program Coordinator if the committee has not yet been formed. Graduate students may also take courses from the Marine Biology and Marine Sciences Department at Texas A&M University at Galveston and Wildlife and Fisheries Sciences, and Oceanography and Biology Departments at Texas A&M University.
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MARB 5102.  1 sem. hr. (1:0)
GRADUATE RESEARCH SEMINAR
Advanced topic study and presentation by students, faculty, or visiting scientists. Meets one hour weekly. Must be taken once per year by all M.S. students.

MARB 5292. 2 sem. hrs.
THESIS PROPOSAL
Thesis students must submit a completed proposal for their thesis project. A course section will be created for the student to enroll. Upon successful completion and submission of the proposal signed by the graduate committee of the student, students may then register for MARB 5293 Thesis Research. Open only to M.S. Thesis Degree Candidates in Marine Biology.

MARB 5293. 2 sem. hrs.
THESIS RESEARCH
Implementation of the Thesis Proposal, and the production of a rough draft of the thesis submitted to the graduate committee of the student for initial editing and comment. A course section will be created for the student to enroll. Prerequisite: MARB 5292 Thesis Proposal.

MARB 5294. 2 sem. hrs.
THESIS SUBMISSION
Completion of the final draft of the thesis, signed by the graduate committee of the student and ready for binding and distribution. A course section will be created for the student to enroll. Prerequisite: MARB 5293 Thesis Research. May be taken concurrently with MARB 5293 Thesis Research.

MARB 5397.  3 sem. hrs. (3:0)
DIRECTED RESEARCH
Emphasis on experimental design as related to selected biological topics. Application of research skills. For M.S. students selecting the non-thesis option. Students may register for up to 9 semester hours, but only 3 semester hours will count towards a non-thesis degree.

MARB 5590.  1 5 sem. hrs. (1:0 3:4)
SPECIAL TOPICS
An advanced study of a marine biological topic. May be repeated with full credit in another area of marine biology.

MARB 5596. 1-5 sem. hrs.
DIRECTED INDEPENDENT STUDY
Study in areas of current interest. A total of six semester hours of Directed Independent Study may be counted towards the M.S. degree.

MARB 5940.  1 9 sem. hrs.
THESIS PROJECT RESEARCH
Research related to the M.S. project. Open only to M.S. students in marine biology with consent of the graduate advisor. Does not count as credit toward regular graded (non-research, non-variable credit) coursework for M.S. degree requirement in marine biology. Course is taken as credit/non-credit.

MARB 6102.  1 sem. hr. (1:0)
GRADUATE RESEARCH SEMINAR
Advanced topic study and presentation by students, faculty, or visiting scientists. Meets one hour weekly. Must be taken once per year by all Ph.D. students.

MARB 6202. 2 sem. hrs. (0:6)
APPLIED CORAL REEF ECOLOGY
Applied coral reef ecology focuses on “hands-on” approaches to studying coral biodiversity, coral disease, reef bleaching, fisheries ecology, invertebrate biology, and tropical biology. Students will snorkel and SCUBA dive on the reefs and learn about form and function of corals and their associated organisms. This course requires a 2-3 week field expedition of a Mexican coral reef and successful completion of an on-site research project. Prerequisite: MARB 6301 and permission of the instructor.

MARB 6301. 3 sem. hrs. (3:0)
CORAL REEF SYSTEMS
Coral reef ecology encompasses physiological ecology, population biology, and community structure and ecosystem dynamics. The course ends with consideration of human impacts and economic importance of reef habitats to coastal communities. This course is designed as an intensive program that integrates lectures, reading, and in-class exercises and attempts to focus on reefs of local concern (i.e. the Flower Garden Banks National Marine Sanctuary). Prerequisites: BIOL 3413 Invertebrate Zoology, and BIOL 3428 Principles of Ecology or permission of instructor.

MARB 6310. 3 sem. hrs. (3:0)
PHYSIOLOGICAL ADAPTATIONS IN ANIMALS
A study of the physiological adaptations of animals to their environment, including osmoregulatory and temperature regulatory mechanisms. Prerequisite: BIOL 3430 Physiology or equivalent.

MARB 6314. 3 sem. hrs. (3:0)
AQUATIC ANIMAL NUTRITION
The study of current concepts in aquatic animal nutrition including nutrient sources and requirements, deficiency effects, ingestive/digestive/metabolic processes, formulation and processing of feeds, and practical feeding considerations for selected aquatic species.

MARB 6333. 3 sem. hrs. (3:0)
MARINE BENTHIC ECOLOGY
The ecology of benthic assemblages with emphasis on species and habitats below diver depths. Micro to mesoscale spatial patterns, including bathymetric distribution, abundance and size-structure, diversity gradients, energetics and feeding strategies, and zoogeography of the benthos will be covered. Hydrothermal vents, cold seeps and sea mount fauna will receive special attention.

MARB 6335. 3 sem. hrs. (3:0)
AQUATIC MICROBIOLOGY
Types and distribution of microorganisms in aquatic environments. Interactions with other organisms. Role in nutrient cycling, degradation of organic substances, pollution, water purification. Prerequisite: An undergraduate course in microbiology.

MARB 6373.  3 sem. hrs. (3:0)
MARINE BIODIVERSITY AND CONSERVATION SCIENCE
Biodiversity, including genetic diversity of individual populations to ecosystem diversity, will be addressed,
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... with focus on the marine realm. Methods for assessing and quantifying diversity will be included. Threats to biodiversity, including resource extraction, invasive species, habitat alteration, global warming and ocean acidification, will be covered, as will techniques for recovering and restoring damaged ecosystems. Marine ecosystem management will be discussed, including marine protected areas, and state, federal and international fisheries and resource management issues. Advanced courses in Ecology or Marine Biology would benefit students.

MARB 6392. 3 sem. hrs. DISSERTATION PROPOSAL
Ph.D. students must submit a completed proposal for their dissertation project. A course section will be created for the student to enroll. Upon successful completion and submission of the proposal signed by the graduate committee of the student, students may then register for MARB 6394 Dissertation Research.

MARB 6393. 3 sem. hrs. DISSERTATION RESEARCH
Implementation of the Dissertation Proposal, and the production of a rough draft of the dissertation submitted to the graduate committee of the student for initial editing and comment. A course section will be created for the student to enroll. Prerequisite: MARB 6392 Dissertation Proposal.

MARB 6394. 3 sem. hrs. DISSERTATION SUBMISSION
Completion of the final draft of the dissertation, signed by the graduate committee of the student and ready for binding and distribution. A course section will be created for the student to enroll. Prerequisite: MARB 6394 Dissertation Research. May be taken concurrently with MARB 6394 Dissertation Research.

MARB 6427. 4 sem. hrs. (3:3) COASTAL ECOLOGY OF TEXAS
This graduate course covers a comprehensive approach on the ecology of the Texas coast. Lectures will include geography, geology, and ecology of the Texas coast, with emphasis on coastal communities.

MARB 6428. 4 sem. hrs. (3:3) FISHERIES ECOLOGY
Advanced study of theory and techniques in fisheries science including behavior of fisheries populations and applications to resource management with emphasis in tidal-influenced waters. Includes readings in the current literature and a research project. The laboratory will emphasize practical sampling design and data interpretation.

MARB 6430. 4 sem. hrs. (3:3) MARINE PLANKTON
Investigation of the systematics, distribution and ecology of marine plankton.

MARB 6431. 4 sem. hrs. (3:3) PHYCOLOGY
Study of the major groups of freshwater and marine algae; morphology, ecology, systematics, life cycles and physiology. Laboratories emphasize collection, identification and culturing techniques.

MARB 6436. 4 sem. hrs. (3:3) MARINE ECOLOGY
Advanced studies in structure and habitats of marine environments. Emphasis on factors influencing distribution of marine organisms, including field trips to areas along the Texas coast. Prerequisite: BIOL 3428 Principles of Ecology or equivalent.

MARB 6590. 1-5 sem. hrs. (1:0 3:4) SPECIAL TOPICS
An advanced study of a biological topic. May be repeated with full credit in another area of marine biology.

MARB 6596. 1-5 sem. hrs. DIRECTED INDEPENDENT STUDY
Study in areas of current interest. A total of six semester hours of Directed Independent Study may be counted towards the Ph.D. degree.

MARB 6940. 1-9 sem. hrs. DISSERTATION PROJECT RESEARCH
Research related to the dissertation project. Open only to doctoral students in marine biology with consent of the graduate advisor. Does not count as credit toward regular graded (non-research, non-variable credit) coursework for Ph.D. degree requirement in marine biology. Course is taken as credit/non-credit.