Marine Botany BIOL 4429  
Department of Life Sciences  
Fall 2015

A. COURSE INFORMATION

Course number/section: Biology 4429.001  
Class meeting time:  
Lecture: Tuesday-Thursday 9:30-10:45  
Laboratory: Monday 1-3:50  
Laboratory: Thursday 1-3:50  
Class location:  
Lecture: CS 115  
Laboratories: CS 240  
Course Website: None

B. INSTRUCTOR INFORMATION

Instructor: Dr. Roy L. Lehman  
Office location: CS247  
Office hours: Tuesday-Thursday 8-9 & 11-12  
Telephone: 825-5819  
e-mail: roy.lehman@tamucc.edu  
Appointments: Additional hours by appointment, please call or email.

C. COURSE DESCRIPTION

Catalog Course Description

The ecology of marine plants with emphasis on identification, life histories, and environmental factors of distribution.

Extended Course Description

The course includes studies into the ecology, community structure and environmental characteristics of marine plants. The coastal waters of the Gulf of Mexico are a valuable national and regional resource. In order to safeguard that resource, we need to know and study the biological components of the marine and estuarine waters of that region. Marine plants form the base of the food chain within the environment and may be the first indicator of possible ecological problems. The emphasis in the class will be directed towards the identification of common marine plants, their habitat structure, the study of life histories and the environmental factors affecting the ecology of the marine plants.

D. PREREQUISITES AND COREQUISITES

Prerequisites  
BIOL 1407
Corequisites
None.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)


Optional Textbook(s) or Other References
None.

Supplies

- Plant Press
- Dissecting Kit
- Pocket Knife
- Nylon/Rayon Material
- Field Notebook
- Zip Loc Bags

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. describe the ecological and environmental properties which effect the growth, physiology and distribution of marine plants.

2. list the characteristics, environmental factors and composition of each of the major marine plant communities.

3. differentiate between the divisions of marine plants.

4. evaluate and describe human influences on marine plant environments.

5. discuss and explain methods of management of marine plant systems.
G. **INSTRUCTIONAL METHODS AND ACTIVITIES**

The class will be primarily lecture with support of activities in the laboratory and field. A collection and identification (project) of plants as pressed specimens and permanent microscope slides will provide the student with the materials and activities to identify and learn the coastal plants of Texas.

H. **MAJOR COURSE REQUIREMENTS AND GRADING**

**LABORATORY REQUIREMENTS**

<table>
<thead>
<tr>
<th>REQUIREMENT</th>
<th>VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Students will collect and curate samples of algae/marine plants from various habitats each week. One-half of the project (slides and/or herbarium mounts) is due by the end of laboratory session on either <strong>October 19 or 22, 2015</strong> depending upon your laboratory schedule. (All of A &amp; B are due on <strong>December 1, 2015</strong> by 5 pm)</td>
<td></td>
</tr>
<tr>
<td>A. Students will prepare 20 microscope slides (mounts) showing different marine algal structures ................................................................. 200</td>
<td></td>
</tr>
<tr>
<td>B. Students will prepare 25 herbarium mounts of marine plants .................. 200</td>
<td></td>
</tr>
<tr>
<td>Rhodophyta = 7; Phaeophyta = 4; Chlorophyta = 4; Halophytes (flowering = + points) = 6; Seagrasses = 4</td>
<td></td>
</tr>
<tr>
<td>2. Student quizzes .......................................................................................... 30</td>
<td></td>
</tr>
<tr>
<td>3. Students will complete two laboratory exams (100 points each) .................. 200</td>
<td></td>
</tr>
<tr>
<td>TOTAL: ........................................................................................................ 630</td>
<td></td>
</tr>
</tbody>
</table>

**COMPONENTS OF COURSE GRADE:**

<table>
<thead>
<tr>
<th>VALUE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lecture Examinations (3) (includes the final) 200 600</td>
<td></td>
</tr>
<tr>
<td>2. Laboratory Exams (2) 100 200</td>
<td></td>
</tr>
<tr>
<td>3. Laboratory Quizzes 30 30</td>
<td></td>
</tr>
<tr>
<td>4. Laboratory Projects (2) 200 400</td>
<td></td>
</tr>
<tr>
<td>TOTAL: 1,230</td>
<td></td>
</tr>
</tbody>
</table>

**FINAL GRADE:** Total Number of points ÷ 1,230 = FG (%)

| 90-100% | = A |
| 80-89%  | = B |
| 70-79%  | = C |
| 60-69   | = D |
| 0-59    | = F |

**FINAL EXAMINATION DATE:** December 8, 2015 (8-10:30)
### I. COURSE CONTENT/SCHEDULE

**A. INTRODUCTION**

1. Marine Plants and their Environment
2. History of Phycology in the Gulf of Mexico (Overview)

**B. ECOLOGICAL AND ENVIRONMENTAL PROPERTIES**

1. Geological Factors and Descriptions
2. Hydrological (Physical) Factors
3. Chemical Factors
4. Ecology and Geographic Distribution
5. Marine Plant Physiology

**C. THE ALGAE**

1. Cyanophyta
2. Chlorophyta
3. Phaeophyta
4. Rhodophyta
5. Chrysophyta
6. Pyrrophyta
7. Cryptophyta/Euglenophyta

**D. MARINE PLANT COMMUNITIES**

1. Salt Marsh Communities
2. Seagrass Communities Week 9
3. Lithophytic Communities Week 10
4. Mangrove Communities Week 11
5. Coral (Biotic) Reefs Week 12
6. Phytoplankton Communities Week 13
7. Marine Fungi and Bacteria Week 13

E. HUMAN INFLUENCES ON MARINE PLANT ENVIRONMENTS
1. Marine Pollution Week 14
2. Effects of Dredging Week 14
3. Biocides and Heavy Metals Week 15
4. Utilization of Marine Plants Week 15

F. MANAGEMENT SUGGESTIONS AND DISCUSSIONS Week 15

Note: Changes in this course schedule may be necessary and will be announced to the class by
the Instructor. The assignments and exams are directly related to the Student Learning
Outcomes described in Section F.

LABORATORY/FIELD TRIP TOPIC OUTLINE: “TENTATIVE”

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/31 &amp; 9/3</td>
<td>Lab # 1 Introduction/Laboratory Techniques</td>
</tr>
<tr>
<td>9/10 &amp; 9/14</td>
<td>Lab # 2 Salt Marsh/Blind Oso Bay</td>
</tr>
<tr>
<td>9/17 &amp; 9/21</td>
<td>Lab # 3 Sea Grasses/Upper Laguna Madre Plants/Seaweeds</td>
</tr>
<tr>
<td>9/18-9/19</td>
<td>Field Trip to Laguna Madre Field Station; Fri-Sat</td>
</tr>
<tr>
<td>9/24 &amp; 9/28</td>
<td>Lab # 3 Sea Grasses/Upper Laguna Madre Plants/Seaweeds</td>
</tr>
<tr>
<td>10/1 &amp; 10/5</td>
<td>Lab # 4 Lithophytic Communities</td>
</tr>
<tr>
<td>10/2-10/3</td>
<td>Field Trip to Laguna Madre Field Station; Fri-Sat</td>
</tr>
<tr>
<td>10/8 &amp; 10/12</td>
<td>Lab # 5 Lithophytic Communities</td>
</tr>
<tr>
<td>10/15 &amp; 10/19</td>
<td>Lab # 7 First Laboratory Examination</td>
</tr>
<tr>
<td>10/23 &amp; 10/24</td>
<td>Field Trip to Laguna Madre Field Station; Fri-Sat</td>
</tr>
<tr>
<td>10/22 &amp; 10/26</td>
<td>Lab # 8 Laboratory Project first half due.</td>
</tr>
<tr>
<td>10/29 &amp; 11/2</td>
<td>Lab # 9 Jetties/Phytoplankton</td>
</tr>
<tr>
<td>11/5 &amp; 11/9</td>
<td>Lab # 10 Laboratory Project Work Day</td>
</tr>
<tr>
<td>11/12 &amp; 11/16</td>
<td>Lab # 11 Laboratory Project Work Day</td>
</tr>
<tr>
<td>11/19</td>
<td>Lab # 11 Laboratory Project Work Day</td>
</tr>
<tr>
<td>11/23 &amp; 11/30</td>
<td>Lab # 13 Final Laboratory Examination</td>
</tr>
<tr>
<td>12/1</td>
<td>Lab # 12 Final Project Due</td>
</tr>
</tbody>
</table>
J. COURSE POLICIES

Follow College and University Policies.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
  It is expected that university students will demonstrate a high level of maturity, self-
  direction, and ability to manage their own affairs. Students are viewed as individuals
  who possess the qualities of worth, dignity, and the capacity for self-direction in
  personal behavior.
  See Full University Policy at
  http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

• Classroom/Professional Behavior
  Texas A&M University-Corpus Christi, as an academic community, requires that
  each individual respect the needs of others to study and learn in a peaceful
  atmosphere. Under Article III of the Student Code of Conduct, classroom behavior
  that interferes with either (a) the instructor’s ability to conduct the class or (b) the
  ability of other students to profit from the instructional program may be considered a
  breach of the peace and is subject to disciplinary sanction outlined in article VII of
  the Student Code of Conduct. Students engaging in unacceptable behavior may be
  instructed to leave the classroom. This prohibition applies to all instructional forums,
  including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• Deadline for Dropping a Course with a Grade of W (University)
  The grade of W will be assigned to any student officially dropping a course by
  Friday, November 6, 2015. No student is eligible to receive a W without completing
  the official drop process by this deadline. Visit the Office of the University
  Registrar for the Course Drop Form that must submitted. After November 6, 2015 a
  student will not be allowed to drop a course.

• Grade Appeals (College of Science and Engineering)
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a
  student who believes that he or she has not been held to appropriate academic standards
  as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading,
  may appeal the final grade given in the course. The burden of proof is upon the student to
  demonstrate the appropriateness of the appeal. A student with a complaint about a grade
  is encouraged to first discuss the matter with the instructor. For complete details,
  including the responsibilities of the parties involved in the process and the number of
  days allowed for completing the steps in the process, see University Procedure
  13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible
  through the University Rules website at
  http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science
and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  Disability Services (DS) is the hub for coordinating services and accommodations to ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to http://disabilityservices.tamucc.edu/

**GENERAL DISCLAIMER**

I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.