Marine Plankton
Department of Life Sciences, College of Science and Engineering
Spring 2019

A. COURSE INFORMATION

Course number/section: BIOL5430/MARB 6430
Class meeting time: TR 11:00 – 12:15 a.m. (lectures), R 05:15-7:50 P.M. (lab)
Class location: Lecture: ECMS 107, Lab: ECMS 114
Course Website: 83657.201901 (Blackboard identifier)

B. INSTRUCTOR INFORMATION

Instructor: Simon Geist
Office location: SL1-101
Office hours: TR 1-3 p.m., W 10-11 a.m.
Telephone: 825-4164
e-mail: simon.geist@tamucc.edu
Appointments: Email or call for appointment

C. COURSE DESCRIPTION

Planktonic organisms occupy central roles in aquatic and marine food webs. The analysis of processes acting at these lower trophic levels is thus crucial to understand the functioning mechanisms of an entire ecosystem, including higher trophic levels such as fish. Furthermore, many fisheries resources have planktonic early life stages, which are the direct link from planktonic world to stock development. In this class we will investigate the systematics, distribution and ecology of major marine plankton groups and introduce major concepts in biological oceanography.

D. PREREQUISITES AND COREQUISITES

Prerequisites
none

Corequisites
SMTE 0091.W02 (SAIL crn is 80685)

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
No textbook is required. Students are expected to read peer-reviewed literature provided by instructors.

Optional Textbook(s) or Other References
For supplemental reading the following books are recommended:
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.

Marine Plankton is a class about Biological Oceanography. It covers organisms and life stages at the bottom of the marine food web, how they interact with the environment, and their importance for ecosystem functioning. Many beautiful and fascinating life forms are found in the microscopic plankton world and processes in the plankton play fundamental roles for the whole marine ecosystem up to fish, sharks and other top predators. This class provides fundamental and specific knowledge for students interested in a career in marine sciences, useful to a wide field of specializations related to environmental, ecosystem and fisheries science and management.

The theoretical part is a combination of general lectures and specialized paper discussions on:
Basics of Biological Oceanography and Sampling Techniques
Major planktonic groups (including bacterio-, phyto-, zoo- and meroplankton).
Key Processes in the planktonic world (e.g. Biological Pump, Climate Change, Food Webs, and Recruitment Theories)

For the practical part, we will collect plankton samples both in the bays and in the coastal Gulf of Mexico and identify and image examples for the major planktonic groups in the lab.

By the end of this course, students will have:
1. Excellent knowledge of foundations and recent developments in the field of Biological Oceanography
2. Holistic understanding of major processes shaping plankton communities
3. Proficiency in identification of marine plankton into major taxonomic groups
4. Experience in conducting field sampling for different plankton groups and summarize results
5. Presented oral summary of literature on classic concepts and present challenges in plankton ecology
G. INSTRUCTIONAL METHODS AND ACTIVITIES

Classes are structured by weekly topics, with introductory lectures on Tuesdays and background lecture and discussion of pertinent/semenal papers in the field Thursdays. Labs will combine field sampling, introduction to sampling equipment, data collection/analysis and identification of planktonic organisms.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Assessment will be based upon:

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Exams (2)</td>
<td>30</td>
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<tr>
<td>Paper Presentations</td>
<td>30</td>
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<tr>
<td>Lab Report (1)</td>
<td>25</td>
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<tr>
<td>Active Participation in Discussions</td>
<td>10</td>
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<td>Attendance</td>
<td>5</td>
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Grading scale (%):
90.0 - 100.0 = A
80.0 - 89.9 = B
70.0 - 79.9 = C
60.0 – 69.9 = D
0.0-59.9 = F

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>DATE (BY DAY OR WEEK)</th>
<th>TOPIC</th>
<th>LAB(S)</th>
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<tbody>
<tr>
<td>1 (Jan 15, 17)</td>
<td>Basics of Biological Oceanography I</td>
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<tr>
<td>2 (Jan 22, 24)</td>
<td>Basics of Biological Oceanography II</td>
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<tr>
<td>3 (Jan 29, 31)</td>
<td>Plankton Sampling Techniques</td>
<td>Sampling 1</td>
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<tr>
<td>4 (Feb 5,7)</td>
<td>Bacteria/fungi</td>
<td>Sampling 2</td>
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<td>5 (Feb 12, 14)</td>
<td>Cyanoprokaryotes</td>
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<td>6 (Feb 19, 21)</td>
<td>Diatoms/Dinoflagellates/others</td>
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<td>7 (Feb 26, 28)</td>
<td>Phytoplankton &amp; Climate Change, Carbon Cycle and Biological pump</td>
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<tr>
<td>8 (Mar 5, 7)</td>
<td>Exam1-</td>
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<tr>
<td>9 (Mar 11, 15)</td>
<td>Spring Break – No classes</td>
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<tr>
<td>Date</td>
<td>Topic</td>
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<tr>
<td>Mar 19, 21</td>
<td>Microzooplankton</td>
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<td>Mar 26, 28</td>
<td>Macrozooplankton - Copepods</td>
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<td>Apr 2, 4</td>
<td>Jellyfish and other Gelatinous Plankton</td>
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<td>Apr 9, 11</td>
<td>Mero-/Ichthyoplankton</td>
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<td>Apr 16, 18</td>
<td>Food Webs / Match Mismatch</td>
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<td>Apr 23, 25</td>
<td>Zoo-/ Ichthyoplankton &amp; Climate Change</td>
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<td>Apr 30,</td>
<td>Wrap Up</td>
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<td>May 2-9</td>
<td>Final Exam</td>
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Notes:

Assignments: For each weekly topic, students need to read and prepare 3-5 papers which will be discussed in class. During the semester every student will present 3 papers. Lab reports are due on reading day and should be formatted according to the guidelines of the “Marine Biology” journal.

Lab Field sampling trips involve the use of university vehicles (trucks and boats). Number of outings depends on available funds through field trip fees.

Changes in this course schedule may be necessary and will be announced to the class by the Instructor.

The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

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J. COURSE POLICIES

Attendance/Tardiness
Students are encouraged to attend and participate in all classes and labs. Participation will be evaluated based on attendance and class discussion.

Late Work and Make-up Exams
Late work will only be accepted with prior approval from the Instructor.

Extra Credit
Extra credit is given if course evaluations are submitted in time by the participants.

Cell Phone Use
Phone conversations not allowed. For courtesy, please place phones on silent during class.

Laptop Use
Allowed.

**Food in Class**
Eating in class is permitted so long as it does not disrupt the learning environment or the health and safety of others in the class, except if building/room indicates otherwise (e.g. laboratory).

**Missed Exam**
A Grade of “0” will be assigned for any Missed Exam. Prior notice will be required to miss the scheduled exam date/time. If absence is caused by an emergency such as accident, illness etc. an alternative date for the exam may be arranged with the professor.

**Participation**
Students are expected to take an active role in lecture and lab activities.

**Others**
None

### K. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- **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.

- **Statement of Civility**
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner
that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

- **Deadline for Dropping a Course with a Grade of W (University)**
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. *Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course.* Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar ([http://www.tamucc.edu/academics/calendar/](http://www.tamucc.edu/academics/calendar/)) for the last day 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](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](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**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
Statement of Academic Continuity
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

L. OTHER INFORMATION

Academic Advising
The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

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.