Field and Sampling Techniques (BIOL 4409)
Department of Biological Science
Summer I 2017

A. COURSE INFORMATION

Course number/section: Biol 4409.001 (Lecture & Lab)
Class meeting time: Lecture: MTWR 9:00AM-10:55AM
                             Lab: MTWR 11:00AM-12:55PM
Class location: Lecture: CI-128
                        Lab: ECMS-114
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION

Instructors: Christopher J. Patrick, Ph.D. & Lee Smee, Ph.D.
Office locations: HRI 121 (Patrick), CS 250 (smee)
Office hours: Fridays 2-4:30PM, by appointment
Telephone: 361-825-6022
e-mail: Lee.Smee@tamucc.edu; Christopher.patrick@tamucc.edu;
Appointments: Made at least 24 hrs in advance by email

C. COURSE DESCRIPTION

Catalog Course Description
4 Semester Hours (3:3 Experience in field studies, organizing field notes, collecting and
methods of preserving organisms for teaching and museum purposes. The course includes
field ecological sampling methods, environmental data collection, safety, logistics, and
proper scientific equipment operation. Requires permission of the instructor.

Extended Course Description
Ecological research often requires both field and laboratory work to be successful. Built
around MarineGEO, a global research program managed by the Smithsonian Institution,
students will learn to conduct a marine ecology field campaign, collect and preserve a suite
of sample types, process the samples in the laboratory, and organize and analyze the data.

Fieldwork will be conducted from boats and in wadeable areas of Oso Bay, the Mission
Aransas NERR, and the Laguna Madre. Sampling will include benthic cores, seagrass
sampling, oyster sampling, seining, water chemistry, and measuring ecosystem processes
including predation and colonization.

D. PREREQUISITES AND COREQUISITES

Prerequisites: None
Corequisites: SMTE 0091 (Biological Lab Safety Seminar)

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
None

Optional Textbook(s) or Other References

Supplies
Should possess lab coat and protective eye-wear for working with chemicals and other potentially hazardous substances during lab. Should also possess clothing and protective footwear that can be submerged and get wet in the field. Suggested items: reef boots (neoprene boots); hat; sunglasses; sunblock; water bottles; protective sun clothing; towel; backpack; swim-suit; mask and snorkel;

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. Measure marine ecosystem processes in the field using a variety of instrumentation or techniques
2. Sample marine systems for benthic invertebrates and fish using a suite of standard approaches
3. Identify common marine taxa using dichotomous keys and with access to a stereomicroscope and forceps
4. QA/QC data
5. Analyze data using appropriate descriptive and basic comparative statistics
6. Demonstrate understanding how data are collected in the field and curated for long term storage and interpretation

G. INSTRUCTIONAL METHODS AND ACTIVITIES

The course will be taught through field and laboratory exercises that complement lecture material. There will be a class project that spans the entire semester where the data from all
field trips are synthesized and the students analyze the data, write a report, and develop presentations for comparing the study sites. This class project will allow for students to learn first-hand the challenges of conducting a complete ecological study from start to finish.

**MAJOR COURSE REQUIREMENTS AND GRADING**

The learning outcomes stated earlier will be assessed through a variety of methods as noted in the following table.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>25</td>
</tr>
<tr>
<td>Field &amp; Lab Technique</td>
<td>15</td>
</tr>
<tr>
<td>Lab Report</td>
<td>25</td>
</tr>
<tr>
<td>Final Presentation</td>
<td>35</td>
</tr>
</tbody>
</table>

**Grading:** There will be a class project will be graded through a class project report and small group presentations at the end of the semester (style will be discussed in class). Class attendance, participation, and demonstrating understanding practical application of field and lab techniques will also be factored into your final grade. The grading scale is: A=90-100%, B=80-89%, C=70-79%, D=60-69%, and F=0-59%. All grades will be rounded to the nearest whole number, therefore, a grade of 88.50% would be rounded to 89% (A) and a grade of 88.49% would be an 88% (B).

**H. COURSE CONTENT/SCHEDULE**

<table>
<thead>
<tr>
<th>Date</th>
<th>Day of Week</th>
<th>Class Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-May</td>
<td>Tuesday</td>
<td>Course overview (1 hr), squid-pop, deploy Oso Bay Squid Pops, start sampling seagrass, mudflat, rocky rubble, collect the 1 hr squidpop data</td>
</tr>
<tr>
<td>31-May</td>
<td>Wednesday</td>
<td>1. Retrieve Oso Squid 2. Mud Island Squid Pops 3. Mud Island Seagrass, 4. Mud Island Benthic Cores</td>
</tr>
<tr>
<td>2-Jun</td>
<td>Friday</td>
<td>Pick Samples/Weather Make-Up Day/Slow Sampling Make-Up Day</td>
</tr>
<tr>
<td>3-Jun</td>
<td>Saturday</td>
<td>Weekend</td>
</tr>
<tr>
<td>4-Jun</td>
<td>Sunday</td>
<td>Weekend</td>
</tr>
<tr>
<td>5-Jun</td>
<td>Monday</td>
<td>Laguna Madre Field Station Overnight trip including squid pops, mudflat, and seagrass sampling</td>
</tr>
<tr>
<td>6-Jun</td>
<td>Tuesday</td>
<td>Laguna Madre Field Station Overnight trip including squid pops and seagrass sampling</td>
</tr>
<tr>
<td>7-Jun</td>
<td>Wednesday</td>
<td>Rest Day</td>
</tr>
<tr>
<td>8-Jun</td>
<td>Thursday</td>
<td>1. Goose Island Squid-pops. 2. Goose Island seagrass and</td>
</tr>
<tr>
<td>Date</td>
<td>Day</td>
<td>Activity</td>
</tr>
<tr>
<td>--------</td>
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</tr>
<tr>
<td>9-Jun</td>
<td>Friday</td>
<td>mudflat sampling</td>
</tr>
<tr>
<td>10-Jun</td>
<td>Saturday</td>
<td>1. Pick up Goose Island Squid-pops. 2. Goose Island oysters and marsh sampling</td>
</tr>
<tr>
<td>11-Jun</td>
<td>Sunday</td>
<td>Weekend</td>
</tr>
<tr>
<td>12-Jun</td>
<td>Monday</td>
<td>Pick Samples/Weather Make-Up Day</td>
</tr>
<tr>
<td>13-Jun</td>
<td>Tuesday</td>
<td>Pick Samples/Weather Make-Up Day</td>
</tr>
<tr>
<td>14-Jun</td>
<td>Wednesday</td>
<td>Pick Samples/Weather Make-Up Day</td>
</tr>
<tr>
<td>15-Jun</td>
<td>Thursday</td>
<td>Pick Samples/Weather Make-Up Day</td>
</tr>
<tr>
<td>16-Jun</td>
<td>Friday</td>
<td>Pick Samples/Weather Make-Up Day</td>
</tr>
<tr>
<td>17-Jun</td>
<td>Saturday</td>
<td>Weekend</td>
</tr>
<tr>
<td>18-Jun</td>
<td>Sunday</td>
<td>Weekend</td>
</tr>
<tr>
<td>19-Jun</td>
<td>Monday</td>
<td>Basic Statistics and Data Analysis</td>
</tr>
<tr>
<td>20-Jun</td>
<td>Tuesday</td>
<td>Basic Statistics and Data Analysis</td>
</tr>
<tr>
<td>21-Jun</td>
<td>Wednesday</td>
<td>Lab Work and Data Analysis</td>
</tr>
<tr>
<td>22-Jun</td>
<td>Thursday</td>
<td>Lab Work and Data Analysis</td>
</tr>
<tr>
<td>23-Jun</td>
<td>Friday</td>
<td>Field Trip to NERR</td>
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<tr>
<td>24-Jun</td>
<td>Saturday</td>
<td>Weekend</td>
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<tr>
<td>25-Jun</td>
<td>Sunday</td>
<td>Weekend</td>
</tr>
<tr>
<td>26-Jun</td>
<td>Monday</td>
<td>Group Work on final report and presentation</td>
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<tr>
<td>27-Jun</td>
<td>Tuesday</td>
<td>Group Work on final report and presentation</td>
</tr>
<tr>
<td>28-Jun</td>
<td>Wednesday</td>
<td>Group Work on final report and presentation</td>
</tr>
<tr>
<td>29-Jun</td>
<td>Thursday</td>
<td>Group Work on final report and presentation</td>
</tr>
<tr>
<td>30-Jun</td>
<td>Friday</td>
<td>Final Report Due, Presentation Day, Lab Clean-up</td>
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</tbody>
</table>

Note: 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.

1. COURSE POLICIES

Attendance/Tardiness
Each student’s individual career experiences provide valuable perspective to their peers. Therefore, it is critical that you attend class regularly to be a partner in this enhanced learning environment. At each class meeting, attendance will be noted. It is each student’s responsibility to contact the instructor directly (phone or e-mail), in advance, if class will be missed. The instructor will not accept late work without valid reasons. Students with a university approved scheduled absence (athletics, military duty, etc.) must contact the instructor well in advance (~72 hrs) of a scheduled absence. Exams may be taken early in those specific cases. Students who do not arrange to take exams ahead of time will not be eligible for this special consideration. A written excuse from the university department involved is required.

Students are encouraged to contact the instructor anytime they are not achieving their intended level of success, prior to taking any other action. Students who need to withdraw must complete an official form and submit it consistent with college policy no
later than the official published date. “Incomplete” grades are awarded only when an emergency prevents a student from completing a minor portion of the course assignments. Active participation is a part of your grade. It includes (1) asking questions; (2) answering questions with supportive evidence; (3) responding to other student’s comments, etc. Students are expected to be on time for class, to address others with respect, and to project an attentive and concerned demeanor.

**Late Work**
If the final presentation is missed with proper prior notification, the presentation may be given earlier or no later than the following day at the instructors convenience. If the presentation is not given a grade of zero (0) will be entered. If the final paper is late a full letter grade will be removed for each day it is late.

**Extra Credit**
There is no extra credit in this class

**Cell Phone Use**
The use of cell phones and other personal electronic devices (PEDs) are prohibited during class. All cell phones must be turned off during the class period. If you are emergency personnel (i.e., EMT, fire, or police) you may set your device to vibrate. Any student who uses a cell phone to make or answer a call, send and read text messages or e-mails (other than TAMUCC emergency messages), or any other use of a personal electronic device during class may have that device confiscated and be asked to leave class, which will be considered an absence for that class. No student has the right to disturb the teaching and learning process. Voice recording of lectures is allowed, but no video/photography are allowed during class, except with instructor permission.

**Laptop Use**
Laptop computers and tablets may be used in the classroom for taking notes, as long as they are not a nuisance to other students. However, laptops shall not be used for items as noted above for cell phones or PEDs.

**Food in Class**
There is NO eating or drinking in the classroom or in the lab.

**Participation**
Four or more absences, with the exception of death in the nuclear family, sick child/spouse, or personal sickness may result in a failing grade at the discretion of the instructor. **You must** contact the instructor by phone message or e-mail before class to let the instructor know of your absence.

**Other**
Plagiarism and Cheating will not be tolerated.

**Plagiarism:** The Merriam-Webster Dictionary defines plagiarism as “To pass off as one’s own words or ideas of another.”
Plagiarism involves:

- Submitting another person's work as one's own
- Submitting work from any source that is not properly acknowledged by footnote, bibliography, or reference within a paper
- Submitting work pieced together from phrases and/or sentences from various sources without acknowledgement
- Submitting work with another person's phrase(s) rearranged without acknowledgement
- Submitting work that uses any phrase, sentence, or stylistic mannerism without acknowledgement
- Omitting quotation marks from any directly quoted material
- Failure to use three dots (…) to indicate omission of one or more words
- Any other actions deemed to be plagiarism by the faculty

Cheating is defined as:

- Copying to any extent the work of another student
- Intentionally assisting another student during an examination
- Having access to material related to an examination during an examination
- Possessing or having access to unauthorized copies of an examination
- Departing from any stated examination conditions

*Cheating or other academic dishonesty for exams and assignments will not be tolerated and will result in a Failing (F) grade for the class and suspension.*

**J. 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)**
  The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic 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, 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**
  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.

http://disabilityservices.tamucc.edu/

- **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.

**K. 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.

- **Methods of Achieving Success**
  Achieving success in this course will require a time commitment outside of class that averages three to six hours per week for reading and studying. Students benefit from actively participating in the field work, classroom discussion, and lab demonstrations and activities.

**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.