Field and Sampling Techniques (Biol 4409.001)
Department of Biological Science
Summer I 2019

A. COURSE INFORMATION
Course number/section: Biol 4409.001 (Lecture & Lab)
Class meeting time: Monday – Friday (9am- 5pm)
Class location: Lecture: CS-240 / Lab: CS-240
Course Website: https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION
Instructors: Christopher J. Patrick, Ph.D.
Office locations: TH 140 (Dr. Patrick);
Office hours: Fridays 2-4pm, by appointment
Telephone: 361-825-6022 (Dr. Patrick)
e-mail: 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 preserving organisms for teaching and museum purposes. The course includes field ecological sampling methods, environmental data collection, field sampling safety and logistics, and proper scientific equipment operation. Requires permission of the Instructors.

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 National Estuarine Research Reserve (NERR), and the Upper Laguna Madre. Sampling will be conducted in nearshore oyster and seagrass habitats and will include benthic infauna cores, seagrass biomass, faunal collection (with seine nets and throw traps), water chemistry, and measuring ecosystem processes such as predation and colonization.

D. PREREQUISITES AND COREQUISITES
Prerequisites
None

Corequisites
None
E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook(s)
None

Optional Textbook(s) or Other References
Instructors will provide material electronically via Blackboard.

Supplies
Students are required to have a lab coat and protective eye-wear for when working with chemicals and other potentially hazardous substances during lab activities. Students also are required to possess clothing and protective footwear that can be submerged and get muddy for fieldwork activities. Suggested items: reef/wading booties (neoprene boots); hat; sunglasses; sunblock; water bottles; protective sun clothing; towel; backpack; swim-suit; and 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 and 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 statistical analyses.
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 will be synthesized and students will analyze the data, write a report, and develop a presentation 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.
H. 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>
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</tbody>
</table>

**Grading:** There will be a class project which each student will be graded on their written report and oral presentation (style will be discussed in class). Class attendance, participation, and demonstrating understanding of the practical application of field and lab techniques will also be factored into the 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 89.51% would be rounded to 90% (A) and a grade of 89.49% would be an 89% (B).

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Summary of Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/28/2018</td>
<td>Tuesday</td>
<td>Course Overview, introductions, MarineGEO background and goals, and SquidPop Construction</td>
</tr>
<tr>
<td>5/29/2018</td>
<td>Wednesday</td>
<td>Out to Oso Bay to discuss sampling, deploy squid pops, perform seagrass quadrats, transects, and cores</td>
</tr>
<tr>
<td>5/30/2018</td>
<td>Thursday</td>
<td>Pick up the squid pops, pull seines and throw traps, back to lab to sort samples</td>
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<tr>
<td></td>
<td></td>
<td>- Lecture by Dr. Chris Bird about Barcoding</td>
</tr>
<tr>
<td>5/31/2018</td>
<td>Friday</td>
<td>Field Trip with Taxonomic Experts from MarineGEO</td>
</tr>
<tr>
<td>6/1/2018</td>
<td>Saturday</td>
<td>Weekend</td>
</tr>
<tr>
<td>6/2/2018</td>
<td>Sunday</td>
<td>Weekend</td>
</tr>
<tr>
<td>6/3/2018</td>
<td>Monday</td>
<td>Meet at boat barn at 7AM, load into vans, drive to Port Aransas. Launch at Public Launch and head to San Jose Island to deploy squidpops, collect seagrass samples, take sediment and infaunal cores. Time permitting we will also perform seines and throw traps. This is our longest and hardest day in the field! Expect to be home late!</td>
</tr>
<tr>
<td>6/4/2018</td>
<td>Tuesday</td>
<td>Meet at boat barn at 7am, load into vans, drive to UTMSI. Lecture about the Mission Aransas National Estuarine Research Reserve from Director Jace Tunnell and Staff Scientist Katie Swanson. Launch boats and go pick up squid pops at San Jose Island. Finish remaining work (oyster</td>
</tr>
<tr>
<td>Date</td>
<td>Day</td>
<td>Activity Description</td>
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<tr>
<td>6/5/2018</td>
<td>Wednesday</td>
<td>Head over to Mud Island to get a tour of the TEN Experiment, students will snorkel her and help with cage cleaning and basic data collection. Head back to TAMU-CC.</td>
</tr>
<tr>
<td>6/6/2018</td>
<td>Thursday</td>
<td>Meet at the Boat Barn at 8am, load into Vans, drive to Snoopy’s to launch boats into the inter-coastal waterway. Drive to Field Station for Overnight Trip. Deploy squid-pops, do seagrass transects, take cores, pull seines, do throw traps. Epibenthic sled and other methods used as well. Sort the fish samples and then free afternoon for swimming, fishing, and hanging out. Dinner at field station. Nighttime do a second set of squid-pops, seines, and throw traps to see if nighttime is different from daytime.</td>
</tr>
<tr>
<td>6/7/2018</td>
<td>Friday</td>
<td>Pick up the 24 hour squid-pops, fun day, multiple gear types and sampling</td>
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<tr>
<td>6/8/2018</td>
<td>Saturday</td>
<td>Clean up, head back to campus. Day is done! Catch up on your zzzzz’s ;)!</td>
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<tr>
<td>6/9/2018</td>
<td>Sunday</td>
<td>Weekend</td>
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<tr>
<td>6/10/2018</td>
<td>Monday</td>
<td>Lab Work - Project Ideas' are DUE to Dr. Patrick</td>
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<tr>
<td>6/12/2018</td>
<td>Wednesday</td>
<td>Lab Work</td>
</tr>
<tr>
<td>6/13/2018</td>
<td>Thursday</td>
<td>Lab Work</td>
</tr>
<tr>
<td>6/14/2018</td>
<td>Friday</td>
<td>Lab Work - Possible Day Off If We are On Schedule</td>
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<tr>
<td>6/15/2018</td>
<td>Saturday</td>
<td>Weekend</td>
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<tr>
<td>6/16/2018</td>
<td>Sunday</td>
<td>Weekend</td>
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<tr>
<td>6/17/2018</td>
<td>Monday</td>
<td>Lab Work</td>
</tr>
<tr>
<td>6/18/2018</td>
<td>Tuesday</td>
<td>BioBlitz – Genomics Day – Prelim Results Presentation</td>
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<tr>
<td>6/19/2018</td>
<td>Wednesday</td>
<td>Lab Work</td>
</tr>
<tr>
<td>6/20/2018</td>
<td>Thursday</td>
<td>Lab Work</td>
</tr>
<tr>
<td>6/21/2018</td>
<td>Friday</td>
<td>Data Analysis and Presentation Work</td>
</tr>
<tr>
<td>6/22/2018</td>
<td>Saturday</td>
<td>Weekend</td>
</tr>
<tr>
<td>6/23/2018</td>
<td>Sunday</td>
<td>Weekend</td>
</tr>
<tr>
<td>6/24/2018</td>
<td>Monday</td>
<td>Data Analysis and Presentation Work</td>
</tr>
<tr>
<td>6/25/2018</td>
<td>Tuesday</td>
<td>Data Analysis and Presentation Work</td>
</tr>
<tr>
<td>6/26/2018</td>
<td>Wednesday</td>
<td>Data Analysis and Presentation Work</td>
</tr>
<tr>
<td>6/27/2018</td>
<td>Thursday</td>
<td>Final Presentations and Papers Due</td>
</tr>
<tr>
<td>6/28/2018</td>
<td>Friday</td>
<td>Lab Clean-Up, Exit Discussion</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 Instructors. Given the nature of field work, we’ll do our very best to keep to the schedule above but we fully expect some days to go more smoothly than others. The assignments shown are directly related to the Student Learning Outcomes described in Section F.
J. **COURSE POLICIES**

**Attendance/Tardiness**

Each student’s individual career experiences provide valuable perspective to their peers. Therefore, it is critical that students 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 instructors directly (phone or e-mail), in advance, if class will be missed. The Instructors will not accept late work without valid, university-excused reasons. Students with a university approved scheduled absence (athletics, military duty, etc.) **must** contact the Instructors well in advance (>72 hrs) of a scheduled absence. Assignments may be turned in early in those specific cases. Students who do not arrange to turn in assignments 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 Instructors 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 a student’s 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 are prohibited during class. All cell phones must be turned off during the class period. If a student is an emergency personnel (i.e., EMT, fire, or police), a personal electron device may be set 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 TAMU-CC 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 the Instructors 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 other personal electron devices.

Food in Class
There is NO eating or drinking in the classroom or in the lab. Students are permitted to bring food and drinks (that must be safely stowed during classroom and laboratory activities) that can only be consumed outside of the classroom and laboratory during allotted break times.

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 Instructors. Students must contact the Instructors by phone message or e-mail before class regarding a student’s absence.

Other
Plagiarism and Cheating will not be tolerated. 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.

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 Instructors.

Cheating involves:
- 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.

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 Instructors’ 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. The Instructors will strive to provide all students with a high quality educational experience that is free from repression. It is the student’s responsibility to follow the rules of the University, city, state, and federal government. Students are expected to 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 Instructors before any decisions to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in a student 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 Instructors. 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 a student requires an accommodation for a disability, please call 361-825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If a student is 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/](http://disabilityservices.tamucc.edu/)

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes cannot be held on the campus of Texas A&M University-Corpus Christi; this course will 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 Instructors have 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.

- **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, writing, and presentation preparation. Students benefit from actively participating in the field work, classroom discussion, and lab demonstrations and activities.

M. **GENERAL DISCLAIMER**
The Instructors reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. The instructors will announce such changes in a timely manner during regularly scheduled course activities.