Invertebrate Zoology
Biol 3413.001
Department of Life Sciences
Summer I 2018

A. COURSE INFORMATION

Course number/section: Biol 3413.001
Class meeting time: MTWR 11:00 AM-12:55 PM
(Lab: TRF 8:00-10:50 am; see lab syllabus)
Class location: Lecture: CS-108
Laboratory: ECMS-114
Course Website: (Island Online/Blackboard Portal): https://bb9.tamucc.edu/

B. INSTRUCTOR INFORMATION

Instructor: Dr. Fabio Moretzsohn
Office location: EN-314C
Office hours: W 9:00-10:00 am; R 3:00-4:00 pm; F 11:00 am-12:00 pm
Telephone: (361) 825-3477
e-mail: Fabio.moretzsohn[at]tamucc.edu
Appointments: A student may make an appointment to see me at times other than the
scheduled office hours. I am available for consultation and extra help, but it is the student’s
responsibility to request such help. If I am unavailable during office hours, I will post a note
on my office door. I prefer communication via email; please add class section to email heading.

C. COURSE DESCRIPTION

Catalog Course Description
Structure, life history, taxonomy and evolution of the invertebrates with special emphasis on
the phylogeny and ecological relationships of the major phyla. Laboratory will involve field
trips and survey collections. Prerequisite BIOL 1407 - Biology II. SMTE 0091 - Biological
Laboratory Safety Seminar is a co-requisite for this course. Documented completion of this
safety training is required early in the semester for continued participation in this course.

Extended Course Description
Students in this course will investigate the systematics and natural history of the invertebrates.
Understanding biological nomenclature and the role of Greek and Latin prefixes, suffixes, and
roots will be emphasized. The lab includes comparing and contrasting the structure of the
various invertebrate phyla to better understand their evolutionary relationships.

D. PREREQUISITES AND COREQUISITES

Prerequisites:
BIOL 1407 - Biology II
Corequisites:
SMTE 0091 - Biological Laboratory Safety Seminar

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES

Required Textbook:

Required App: Top Hat
We will be using the Top Hat ([www.tophat.com](http://www.tophat.com)) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message. Points earned on Top Hat will count toward the course grade (in the Quiz category).

You can visit the Top Hat Overview ([https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide](https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide)) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if don’t receive this email, you can register by simply visiting our course website: [https://app.tophat.com/e/973696](https://app.tophat.com/e/973696). Note: our Course Join Code is **973696**. Please use your TAMUCC email and the same name as registered in the class. Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found here: [www.tophat.com/pricing](http://www.tophat.com/pricing). Points will only be accepted from a single Top Hat account per student (i.e., you can’t sign up for multiple free trials).

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email ([support@tophat.com](mailto:support@tophat.com)), the in-app support button, or by calling 1-888-663-5491.

**Recommended textbook/field guide:**

**Supplies and Equipment:**
- All students are required to have a lab coat when entering the labs for any reason. In addition, to the lab coat, students must be wearing long pants and closed-toe, close-heel shoes to enter the labs at any time.
- Students must bring their school ID to exams.

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:

**SLO 1.** DEMONSTRATE knowledge of relationships among and between the invertebrate phyla with regard to their evolution, anatomy and physiology, taxonomy, and ecology.

**SLO 2.** UNDERSTAND the system of biological nomenclature as it relates to the invertebrates and DEMONSTRATE knowledge of the role of Greek and Latin word roots and combining forms in biological nomenclature.

**SLO 3.** UNDERSTAND how invertebrate anatomy and physiology affect their life history.

**SLO 4.** BE ABLE TO IDENTIFY invertebrate organisms down to the taxonomic level of Order.

**SLO 5.** DEMONSTRATE the ability to correctly curate a survey collection in the lab and maintain a biodiversity inventory on iNaturalist.org.

Student’s abilities to complete these tasks will be evaluated through:

1. Four exams (three regular exams and one final).
2. Laboratory activities (see BlackBoard), including field trips. (Laboratory is mandatory)
3. Possible (TBD) additional activities which may include: quizzes, group in-class activities or other activities.

**G. INSTRUCTIONAL METHODS AND ACTIVITIES**

Instructional methods may include PowerPoint lectures, videos, group activities, quizzes, supplemental questions and homework.

**H. MAJOR COURSE REQUIREMENTS AND GRADING**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>SLO</th>
<th>POINTS</th>
<th>% of FINAL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Exams (3)</td>
<td>1, 2, 3</td>
<td>150 points (each)</td>
<td>15 % (each)</td>
</tr>
<tr>
<td>Lecture Final Exam</td>
<td>1, 2, 3</td>
<td>150 points</td>
<td>15 %</td>
</tr>
<tr>
<td>Quizzes and Exercises (Top Hat)</td>
<td>1, 2, 3</td>
<td>100 points</td>
<td>10 %</td>
</tr>
<tr>
<td>Lab Exams (2)</td>
<td>1, 2, 3, 4</td>
<td>75 points (each)</td>
<td>15 %</td>
</tr>
<tr>
<td>Lab Presentation</td>
<td>1, 2, 3, 4</td>
<td>100 points</td>
<td>10 %</td>
</tr>
<tr>
<td>Field Trip Participation</td>
<td>3, 4</td>
<td>50 points</td>
<td>5 %</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>1000 points</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>
Letter Grades: Your final letter grade will be based on your average in lecture and laboratory based on the weights stated above. Statistical manipulations (e.g., curving) may be performed once—at the end of the semester—not for each examination. The final grading scale will also be determined at the end of the semester, but the cut-off for each grade will be no higher than the following:

\[
A \geq 90\% > B \geq 80\% > C \geq 70\% > D \geq 60\% > F
\]

- I will rectify any clerical, mathematical, and/or other errors. However, you have one (1) week to notify me of such errors after an assignment, quiz or examination is returned.
- I will not change a legitimate course grade just because you “need” it (for financial aid, to get into professional school, etc.). The grading section of this syllabus describes how I assign grades. Please be sure you earn enough points to get the grade you want. There will always be someone who just missed a D, or a C, or a B, or an A. Although I reserve the right to curve, doing so is usually not necessary. (Curves are based on statistical analysis of the entire class’s performance, not on the needs of individual students.) I have to draw lines between grades, and no matter where I draw them, someone is on the wrong side. Don’t let that someone be you. You have plenty of help in my class. Take advantage of the resources I offer. The reasons for receiving a grade of “I” (incomplete) are clearly defined in the University Catalog; this “grade” cannot be used simply to prevent a student from receiving an unwanted grade in a class.
- I only discuss grades in person (i.e., I do not discuss grades or matters relating to grades over the telephone or by e-mail). If you wish to know your final grade before the official grade report is mailed to you, please see me in person or provide me with a self-addressed, stamped envelope.

Examinations: There will be four examinations (three lecture exams plus the final exam, worth 150 points each), taking questions for these tests primarily from material covered in the lectures, from handouts and other assignments, and from readings in the textbook and the lab. Examinations may consist of essay, short-answer, compare-contrast, fill-in-the-blank, multiple-choice, matching, making and/or labeling drawings, and/or various types of “flex” questions (i.e., anything is fair game). The first three examinations are sequential (i.e., each examination covers material from one specific section of the course, as listed below under course schedule). The final examination is comprehensive (i.e., covers material from the entire course), and redemptive (i.e., it can count as nothing; it can replace single examination; or it can be your entire examination grade). Thus, your examination grade can come from a percentage derived from:

1) the final examination alone…
2) the average of the four examinations…
3) the average of the three highest examinations with the final used to replace the lowest examination…

… whichever method gives you the highest percentage.

- If you leave an examination room—for any reason—you must turn in your exam and answer sheet and you will not be allowed to resume the examination. Attend to personal
matters (e.g., restroom visits) before the examination.

- Be on time! Anyone arriving after someone has completed an examination and left the room will not be allowed to take that examination.
- Cheating and plagiarism are unacceptable behaviors.

I. COURSE CONTENT/SCHEDULE

Course topics and schedule outline:

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>CHAPTER</th>
<th>PAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction</td>
<td>1</td>
<td>1-32</td>
</tr>
<tr>
<td>1</td>
<td>Systematics; Protists</td>
<td>2, 3</td>
<td>35-52; 55-60; 64-70</td>
</tr>
<tr>
<td>1</td>
<td>Protists; summaries of each phyla</td>
<td>3</td>
<td>55-60; 64-70; summaries</td>
</tr>
<tr>
<td>1</td>
<td>Introduction to the Animal Kingdom</td>
<td>4</td>
<td>135-180</td>
</tr>
<tr>
<td>2</td>
<td>Animal Kingdom: Development, Life Histories</td>
<td>5</td>
<td>187-209</td>
</tr>
<tr>
<td>2</td>
<td>Review; Exam 1 (Jun. 5)</td>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Porifera</td>
<td>6</td>
<td>213-234; 249-258</td>
</tr>
<tr>
<td>2</td>
<td>Cnidaria: overview of classification; bauplan</td>
<td>7</td>
<td>265-287; 293-321</td>
</tr>
<tr>
<td>3</td>
<td>Ctenophora; Introduction to Bilateria; Platyhelminthes</td>
<td>8; 9; 10</td>
<td>327-341; 345-349; 373-394; 399-409</td>
</tr>
<tr>
<td>3</td>
<td>Mollusca: overview of classification; bauplan</td>
<td>13</td>
<td>(453-472); 472-524</td>
</tr>
<tr>
<td>3</td>
<td>Review; Exam 2 (Jun. 14)</td>
<td>6-10; 13</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Annelida: overview of classification; bauplan</td>
<td>14</td>
<td>(531-541); 541-572</td>
</tr>
<tr>
<td>4</td>
<td>Emergence of Arthropods: Tardigrada to Trilobites; Crustacea: overview of classification; bauplan</td>
<td>20, 21</td>
<td>709-756; (761-798); 798-836</td>
</tr>
<tr>
<td>4</td>
<td>Crustacea (cont.); Hexapoda (Insects): overview of classification; bauplan</td>
<td>21, 22</td>
<td>843-846; (847-858); 859-890</td>
</tr>
<tr>
<td>4</td>
<td>Exam 3 (Jun. 22)</td>
<td>14, 20-22</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Myriapods; Chelicerates: classification; bauplan. Review</td>
<td>23, 24</td>
<td>895-909; (911-926); 927-962</td>
</tr>
<tr>
<td>5</td>
<td>Echinodermata: classification; bauplan; Chordata</td>
<td>25</td>
<td>967-971; (971-975)</td>
</tr>
<tr>
<td>5</td>
<td>Echinodermata (cont.); Chordata; Invert. Phylogeny</td>
<td>27; 28</td>
<td>975-1003; 1047-1051</td>
</tr>
<tr>
<td>5</td>
<td>Review; Final Exam (Jun. 29)</td>
<td>all studied</td>
<td>comprehensive</td>
</tr>
</tbody>
</table>

The topics and schedule above may require adjustment. Additional assignments may or may not be provided at the Instructor’s discretion. Such assignments might include homework, group projects, reading assignments, quizzes, etc. Every attempt will be made to follow the time and evaluation schedules shown here. **It is the student’s duty to attend each class**
session, and regularly visit BlackBoard to be aware of all assignments, deadlines, and changes to such.

Exam Dates:

Exam 1: Tues., Jun. 5, 12:00-12:55 pm
Exam 2: Thurs., Jun. 14, 12:00-12:55 pm
Exam 3: Thurs., Jun. 21, 12:00-12:55 pm
Final exam: Fri, Jun. 29, 11:00 am-12:55 pm

Mid-term Practical exam: Thursday, Jun. 14
Final Practical exam: Thursday, Jun. 28

The complete course calendar is posted on Blackboard.

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.

J. COURSE POLICIES

Attendance/Tardiness

My attendance policy is the same as that stated in the University Catalog. Attendance is the student’s responsibility, and students are expected to attend, be on time for and remain the entire period in every class. Attendance is not used to determine grades. In the lecture, even if I take roll, I do not give—per se—a bonus for attendance, or a penalty for absence (except for missing an examination, bonus points, or an assignment). (Note that I may choose to have “pop” quizzes, and/or “attendance” quizzes as part of the bonus points.) Coming to lecture on a regular basis should result in a higher grade, and if you come to class often, it will help you do well in this course.

You are responsible for the material covered and assignments made in every lecture regardless of whether you attend it. “I came in late and didn’t hear about the assignment,” is never an acceptable excuse. It is always your responsibility to determine what happened in class during your absence. If you are absent, tardy, or leave early, I will provide you with copies of assignments (including “bonus point” assignments) and handouts if—and only if—you ask for them. (In other words, I will not, “track down” absentees to make sure that they know about assignments.) You must obtain class notes from other students.

Points missed because of an unexcused absence (including tardiness and leaving early) cannot be recovered. An excused absence allows us to make alternative arrangements for completing assignments; an excused absence is not a waiver of assignments, knowledge, skills or experiences necessary to complete a course. The documentation required for an absence to be excused must be:

- from an appropriate source (doctor, dentist, funeral director) who states the nature and dates of the event
• in writing, on official letterhead, and signed (it will not be returned)
• presented prior to the absence for a scheduled event (e.g., university-sponsored activity, recognized religious holiday, military service); and
• presented no more than one week after the date of an unexpected absence.

Late Work and Make-up Exams
You may always turn in assignments early. Except for excused absences, late assignments will not be accepted. If you know in advance that you will have an excused absence when an assignment is due, you must turn in that assignment before its due date. You should turn in assignments that were missed because of an unexpected, excused absence as soon as possible.

For some scheduled events (athletics, military duty, etc.), you may arrange to take a lecture examination before (but not after) its scheduled date. (You should take a test as close to its originally scheduled time as possible, but you may not take a test more than one week before its originally scheduled time. You must obtain your instructor’s approval at least one week before you wish to take the pre-test). If you arrange to take any test at an alternate time and do not show for that appointment, then you forfeit the opportunity to take the test except at its originally scheduled time. Students who do not arrange to take examinations in advance will not be eligible for this special consideration. A written excuse from the university department involved or from the Office of Student Engagement and Success is required.

In general, there are NO individual make-up examinations. The grading formulas above give you three chances to earn points from lecture examinations: method 1 or 3 if you miss one lecture examination; method 1 if you miss more than one lecture examination; method 2 if you miss the final examination. The instructor—in consultation with Dr. Don Albrecht, Vice President for Student Engagement and Success—will determine if circumstances warrant giving an individual a make-up test after the original test. A make-up test given after the original test will be all written (i.e., no multiple choice or matching), and it will be administered on the “Reading Day” for the semester.

Extra Credit
There is no extra credit for individual students.

Cell Phone and Laptop Use
Cell/smart phones and computers: Use of devices that can connect to the internet will not be allowed during the individual or group portion of team learning assignments. If a student is found to be using a cell phone, smart phone, or computer for activities unrelated to the class the device will be taken and put on the desk up front so the student can pick up their device after class. Cellular phones, pagers, and other “beepers” must be silenced BEFORE you enter the classroom. Cell phone or other internet-ready devices may be used for quizzes to access apps such as Socrative, Top Hat or other apps.

Food in Class
Please respect other students and limit your eating food in the class. No food or drinks are allowed in the lab.
Missed Exam
I will follow University policy should you miss an exam due to a University-related event or religious obligations. For students missing exams for other reasons such as family events or illness, please contact me.

Participation
All students are expected to attend the full class and lab periods, complete all learning assignments, complete reading assignments fully and carefully, and to participate in class discussions. A portion of your grade is earned by participation.

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)
  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 be 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 web page 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, websites, 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.