COURSE SYLLABUS

Invertebrate Zoology-BIOL 3413
Summer II 2015

Instructor:  Dr. Bart Cook III
Office:  EN 309
Phone:  825-2683
Email:  Bart.Cook@tamucc.edu

Office Hours: 7:00-8:00 a.m. MWF; 10:00-11:00 a.m. Friday or by appointment

Course Meeting Time:  Lecture  8:00-8:50a.m. MTWR EN 101
Lab  Section 1-M 10:00-2:30 p.m. CS 235
Section 2-TR 2:00-5:00 p.m. CS 235
Section 3-W 9:00-11:50a.m. CS 235


Lab Manual:  Shore Ecology of the Gulf of Mexico-J. Britton
             Beachcombers Guide to Gulf Coast – Rothschild, Susan

COURSE DESCRIPTION:

Biology 3413, Invertebrate Zoology deals with a survey of life histories, classifications and evolution of the invertebrates. The ecological relationships, morphology, behavior and physiology of the major phyla are presented during this course. Special emphasis is placed on those groups with diverse fauna.

The laboratory stresses ecological field observations, collections and identifications through extensive field trips to selected habitat types.

COURSE GRADE:

There will be three (3) lecture exams, equally weighed during the semester. The mean (x) of the two highest lecture test scores will represent ¾ of the students course grade. All (3) lecture exams must be taken.

In general, there will be no make-up exams. The only exceptions are make-up lecture exams based on prior approval of the instructor with a stipulated date for the make-up exam. The exceptions will be made only for students whose exams were in direct conflict with a University sanctioned activity.

Attendance in the laboratory is mandatory. There will be no lab practical make-up exams. The laboratory counts as ¼ of the total grade and is based upon the mean calculated from each student's score on:
(1) final laboratory practical score  200 points
(2) curational team guide  100 points
(3) field trip attendance  50 points
TOTAL  350 points

GRADING SYSTEM*
A=90-100%
B=80-90%
C=70-80%  Lecture (-x) = ¾ course grade
D=60-70%  Lab (-x) = ¾ course grade
F=0-60%

*At the discretion of the instructor, “curve points” may be added to the students overall class average. If “curve points” are given, each and every student will receive the same number of points. No extra credit work is permitted.

COURSE OBJECTIVES:

(1) Lecture: The student will develop extensive knowledge of the phylogenetic relationship between and within the invertebrate phyla. Each student will also grasp details as to the anatomy and physiology of these groups. The ecological relationships of representative taxa are compared throughout the course.

Knowledge of the ethology of representative members of the invertebrates will be developed by end of the course. This should enable more thorough advanced class work to build on this survey.

(2) Laboratory: The laboratory is intended to supply the student with an opportunity to conduct both cooperative as well as individual field work. Practical knowledge as to ecology, collection, observation, identification and curation of invertebrate species will be attained by weekly on-site trip visitation to selected habitats in South Texas.

Each student will develop shared responsibilities through involvement in the curational field trips consisting of three to five students. This team work requirement will help the student to develop interaction skills.
<table>
<thead>
<tr>
<th>TEXT PAGES</th>
<th>CHAPTER</th>
<th>MATERIAL* ______________</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-23</td>
<td>1</td>
<td>Introduction, Environments, References</td>
</tr>
<tr>
<td>24-120</td>
<td>2,3,4,24</td>
<td>Metazoan phylogeny, the Bilateria, etc.</td>
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<tr>
<td>872 888</td>
<td>(5)</td>
<td>(Phylum, Protozoa, Reading is recommended but optional)</td>
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<td>(123_178)</td>
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<tr>
<td>179-209</td>
<td>6,7</td>
<td>Phylum; Porifera; Phylum: Placozoa</td>
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<tr>
<td>219-284</td>
<td>8,9</td>
<td>Phylum, Cnidaria (Coelenterata) and Phylum Ctenophora</td>
</tr>
<tr>
<td>285-318</td>
<td>10</td>
<td>Phylum Platyhelminthes: Phylum Gnathostomulida; Phylum Mesozoa</td>
</tr>
<tr>
<td>319-336</td>
<td>11</td>
<td>Phylum Rhynchocoela (Nemetera)</td>
</tr>
<tr>
<td>337-386</td>
<td>12</td>
<td>The “Aschelminthes” and other Phyla</td>
</tr>
<tr>
<td>701-770</td>
<td>20</td>
<td>Phylum Mollusca</td>
</tr>
<tr>
<td>387-444</td>
<td>13</td>
<td>Phylum Annelida</td>
</tr>
<tr>
<td>461-510</td>
<td>15</td>
<td>Introduction to the Phylum Arthropoda</td>
</tr>
<tr>
<td>653-700</td>
<td>19</td>
<td>The Chelicerate Arthropods</td>
</tr>
<tr>
<td>511-588</td>
<td>16</td>
<td>The Crustacea</td>
</tr>
<tr>
<td>801-838</td>
<td>22</td>
<td>The Phylum Echinodermata</td>
</tr>
</tbody>
</table>
Laboratory
BIOL 3413-Invertebrate Zoology

During the semester, the laboratory of Biology 3413 will be conducted in the field. The overall goals of these exercises will be to broadly survey various invertebrate phyla and to compare first hand the relationship these organism have with one another and with their environment. A wide range of habitat types will be sampled.

It is suggested, but not required that each student keep a complete, yet concise field notebook during the entire semester. In this record, should be noted all field trips made by individuals acting on their own or by the class as a whole. The notebook should involve a trip log, specimen catalog, techniques section and any other material felt to be relevant by the student. It should be kept in a well organized and legible fashion and should represent original work.

The entire class will assemble a collection of representative invertebrates. Each weekly survey collection will be fully curated, recorded, catalogued and maintained by the leader team responsible for the material that respective week. The curation will be completed within one week of collection. The responsibility study team will be penalized 5 points per day for failure to do so. No exceptions will be made.

The field trip teams will consist of 3-5 students each. It will be full responsibility of the team to assemble all the collecting gear, including preservative for the field trip assigned to it. The instructor in charge will aid the students in their preparation for each trip.

Approximately 29-30 specimens will be collected per field trip. The specimens will be labeled as to date, locality, habitat type, and individuals collecting the material. In addition, a separate label identifying the specimen as to phylum, class, and order to be prepared. This information will be assigned their own number so that relevance can be made to catalog and vice versa. Be extremely careful in the assignment and use of the number sequence.

Each student will be held responsible for learning the identification of all study collection specimens. To augment this, the student should make his or her own collection catalog to be included in a personal field notebook.
NOTE: Attendance in lab is mandatory. There are no make-ups for missed labs including the practical. Absence from more than one field trip will result in penalty based on the percentage of field trips attended. I.e., 3 or 4 field trips attended = 40% penalty regarding the laboratory component of the course.

The lab grade will be partially based on the student’s score on a lab practical given at the end of the semester based on representative invertebrates’ set out for study during the semester. These prepared specimens are characteristics invertebrates from each of the habitat types visited and observed on each field trip. The practical will count 100 points toward the point total for lab.

A portion of the lab grade will be based on points (ten) awarded for attendance on each field trip. If for example, five field trips are taken a possible total of 50 points would be acquired by a student attending all five trips.

A field trip or curation team comprised of 3-5 individuals will be graded on the identification and creation of invertebrates specimens collected from specific habitats. This grade will count up to 100 points towards the lab total (350 points).

In this example, 350 points would be totaled from 100 (field/curation team) plus 200 lab pract plus 50 (field trip attendance). The students grade in lab will be calculated as the actual number of accumulated points divided by the total possible that semester times any penalty percentage due to excel field trip absences.

The American with disabilities Act (ADA) is a federal anti-discrimination statue 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 or visit Disability Services at (361) 825-5816 in Driftwood 101.
BIOLOGY 3413
SPECIMEN IDENTIFICATION AND CURATION

The following list of phyla represent those animals that may be encountered during the laboratory exercises in Invertebrate Zoology (BIOL 3413).

Listed for each Phylum are the designated taxonomic groups that should be listed in the identification section of the general specimen catalog and on the specimen level.

An effort should be made to identify the invertebrate as to its common name and as to genus to which it belongs. This information can be listed in the “other” column of the catalog and on the taxonomic label for the specimen.

**Abbreviation Key:**
P=Phylum, SP=Subphylum; SPC=Superclass; C=Class; SC=Subclass; SPO=Superorder; O=Order; SO=Suborder

<table>
<thead>
<tr>
<th>Phylum</th>
<th>Porifera</th>
<th>P,C</th>
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<tbody>
<tr>
<td>“”</td>
<td>Cnidaria</td>
<td>P,C for Cubozoa</td>
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<td></td>
<td></td>
<td>P,C, O for Hydrozoa and Scyphozoa</td>
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<tr>
<td></td>
<td></td>
<td>P, C O for Anthozoa</td>
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<tr>
<td>“”</td>
<td>Ctenophora</td>
<td>P,C</td>
</tr>
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<td>“”</td>
<td>Platyhelmithes</td>
<td>P,C for Turberellaria, Tematoda, Monogena</td>
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<tr>
<td></td>
<td></td>
<td>P,C, SC, for Cestoda</td>
</tr>
<tr>
<td>“”</td>
<td>Rhychocoela</td>
<td>P</td>
</tr>
<tr>
<td>“”</td>
<td>Nematoda</td>
<td>P</td>
</tr>
<tr>
<td>“”</td>
<td>Nematoda</td>
<td>P</td>
</tr>
<tr>
<td>“”</td>
<td>Nematomorpha</td>
<td>P</td>
</tr>
<tr>
<td>“”</td>
<td>Acanthocephala</td>
<td>P</td>
</tr>
<tr>
<td>“”</td>
<td>Annelida</td>
<td>P,C, for Polychaeta, Oligochaeta and Hirudinea</td>
</tr>
<tr>
<td>“”</td>
<td>Mollusca</td>
<td>P,C,SC for Gastropoda (also O if genus or common</td>
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<td></td>
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<td>names known – check with instructor)</td>
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<tr>
<td></td>
<td></td>
<td>P,C for Polyplacophora</td>
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<tr>
<td></td>
<td></td>
<td>P,C, for Scaphopoda</td>
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</tbody>
</table>
P, C, for Bivalvia (also SC and O if genus or common name is known = check with instructor)
P, C, SC, O for Cephalopoda

“ Anthropoda

P, S, P, C, O, for Arachnida
P, S, P, C, for Pycnogonida
P, S, P, C, for Crustacea (also O for Cirripedia)
(also SC, SPO, O and SO for Malacostraca)
P, S, P, C, O for Insecta
P, S, P, C, for Chelopeda and Diplpoda

“ Sipuncula

P

“ Eschiura

P

“ Tardigrada

P

“ Pentastomida

P

“ Bryozoa

P

“ Entoprocta

P

“ Brachiopoda

P

“ Eschinodermata

P, S, P, C, S, C for Asteriodea (also O if genus or common name is known)
P, S, P, C for Eschinioda (also SC and O if genus or common name is known)
P, S, P, C for Holothuroidea

“ Hemichordata

P

“ Chordata

P, S, P, C, O for Asciidae

“ Chaetognatha

P

Summer II
Drop Date deadline: July 24, 2015
Academic Integrity/Plagiarism

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.

Dropping a Class

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 me before you decide to drop to be sure it is the best thing to do. 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. **July 24, 2015** is the last day to drop a class with an automatic grade of “W” this term.

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.
Grade Appeals

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 (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.

Disabilities Accommodations

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 or visit Disability Services at (361) 825-5816 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.
Texas A&M University- Corpus Christi  
Biology 3413  
Invertebrate Zoology  

Lab and Field Schedule  
Summer II 2015  

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab</th>
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<tbody>
<tr>
<td>Monday, July 6</td>
<td>Mandatory introductory lab</td>
</tr>
<tr>
<td>Wednesday, July 8</td>
<td>Team project discussion</td>
</tr>
<tr>
<td>Monday, July 13</td>
<td>Sandy Seacoast fieldtrip- Padre Island Natl Seashore</td>
</tr>
<tr>
<td>Wednesday, July 15</td>
<td>Rocky Seacoast-Port Aransas Jetty</td>
</tr>
<tr>
<td>Monday, July 20</td>
<td>Lab work on-campus</td>
</tr>
<tr>
<td>*Wednesday, July 22</td>
<td>Bay system-Katy Trip field trip</td>
</tr>
<tr>
<td>Monday, July 27</td>
<td>Oyster reef-Salt Marsh field trip</td>
</tr>
<tr>
<td>Wednesday, July 29</td>
<td>Lab Review + self study</td>
</tr>
<tr>
<td>Monday, August 3</td>
<td>Lab practical</td>
</tr>
</tbody>
</table>

*Meet at TAMU-CC at 6:45am, departing at 7:00am. Return to campus at 12:30 p.m - 1:00pm.

NOTE: You **MUST** wear closed toe shoes (NO SANDALS or SLIDES). (You will not be allowed to board the Katy with footwear that doesn’t protect your feet.)