COURSE SYLLABUS
INVERTEBRATE ZOOLOGY-BIOLOGY 3413
Summer II 2014

INSTRUCTOR: Dr. Bart Cook III
OFFICE: EN 309
PHONE: 825-2683
EMAIL: Bart.Cook@tamucc.edu

OFFICE HOURS: 7:00-8:00 am MWF; 10:00-11:00am Friday or by appointment

COURSE MEETING TIME: Lecture 8:00-8:50am MTWR EN 101
Laboratory: 10:00-2:30 pm MW CS 235


LAB MANUAL: Shore Ecology of the Gulf of Mexico-J. Britton
Beachcomber’s 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 the 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) lectures 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 who 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 trade and is based upon the mean calculated from each student’s score on:

(1) final laboratory practical score 200 points
(2) curational team grade 100 points
(3) field trip attendance 50 points (10 points per trip)
TOTAL 350 points
GRADING SYSTEM*

A=90-100%
B=80-90%
C=70-80%  Lecture (-x)= ¾ course grade
D=60-70%  Lab (-x) = ¼ course grade
F=0-60%

*At the discretion of the instructor, “curve points” may be added to the student’s 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.

LAST DAY TO DROP A COURSE: July 25, 2014

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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1-23</td>
<td>1</td>
<td>Introduction, Environments, References</td>
<td></td>
</tr>
<tr>
<td>24-120</td>
<td>2,3,4,24</td>
<td>Metazoan phylogeny, the Bilateria, etc.</td>
<td></td>
</tr>
<tr>
<td>872 888</td>
<td>(5)</td>
<td>(Phylum, Protozoa, Reading is recommended but optional)</td>
<td></td>
</tr>
<tr>
<td>(123-178)</td>
<td>(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>179-209</td>
<td>6,7</td>
<td>Phylum; Porifera; Phylum: Placozoa</td>
<td></td>
</tr>
<tr>
<td>219-284</td>
<td>8,9</td>
<td>Phylum: Cnidaria (Coelenterata) and Phylum Ctenophora</td>
<td></td>
</tr>
<tr>
<td>285-318</td>
<td>10</td>
<td>Phylum Plateyhelminthes: Phylum Gnathostomulida; Phylum Mesozoa</td>
<td></td>
</tr>
<tr>
<td>319-336</td>
<td>11</td>
<td>Phylum Rhynchocoela (Nemertea)</td>
<td></td>
</tr>
<tr>
<td>337-386</td>
<td>12</td>
<td>The “Aschelminthes” and other Phyla</td>
<td></td>
</tr>
<tr>
<td>701-770</td>
<td>20</td>
<td>Phylum Mollusca</td>
<td></td>
</tr>
<tr>
<td>387-444</td>
<td>13</td>
<td>Phylum Annelida</td>
<td></td>
</tr>
<tr>
<td>461-510</td>
<td>15</td>
<td>Introduction to the Phylum Arthropoda</td>
<td></td>
</tr>
<tr>
<td>653-700</td>
<td>19</td>
<td>The Chelicerate Arthropods</td>
<td></td>
</tr>
<tr>
<td>511-588</td>
<td>16</td>
<td>The Crustacea</td>
<td></td>
</tr>
<tr>
<td>801-838</td>
<td>22</td>
<td>The Phylum Echinodermata</td>
<td></td>
</tr>
</tbody>
</table>
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 firsthand the relationship these organisms 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 either 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 fieldtrip teams will consist of 3-5 students each. It will be the 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 290-30 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 will 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 fieldtrip or curation team comprised of from 3-5 individuals will be graded on the identification and creation of invertebrate specimens collected from specific habitats. This grade will count up to 100 points towards the lab total (250 points).

In this example, 250 points would be totaled from 100 (field/curation term) plus 100 field curation team plus 50 (field trip attendance) The student’s 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 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 Driftwood 101.
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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cnidaria</td>
<td>P,C, for Cubozoa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P,C, O for Hydrozoa and Scyphozoa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>P, C, O for Anthozoa</td>
</tr>
<tr>
<td></td>
<td>Ctenophora</td>
<td>P,C</td>
</tr>
<tr>
<td></td>
<td>Platyhelminthes</td>
<td>P,C, for Turberellaria, Tematoda, Monogena</td>
</tr>
<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>
</tbody>
</table>
Mollusca

P, C, SC for Gastropoda (also O if genus or common names known – check with instructor)
P, C, for Polyplacophora
P, C, for Scaphopoda
P, C, for Bivalvia (also SC and O if genus or common name is known = check with instructor)
P, C, SC, O for Cephalapoda

Anthropoda

P, SP, C, O, for Arachnida
P, SP, C, for Pycnogonida
P, SP, C, for Crustacea (also O for Cirripedia)
(also SC, SPO, O AND SO for Malacostraca)
P, SP, C, O, for Insecta
P, SP, C, for Chilopoda and Diplopoda

Sipuncula

P

Eschiura

P

Tardigrada

P

Pentastomida

P

Bryozoa

P

Entoprocta

P

Brachiopoda

P

Eschino dermata

P, SP, C, SC for Asteriodea (also O if genus or common name is known)
P, SP, C for Eschinoidea (also SC and O if genus or common name is known)
P, SP, C, for Holothuroidea
P, SP, C, for Ophiuroidea

Hemichordata

P

Chordata

P, SP, C, O, for Asciidacea

Chaetognatha

P
The Life Sciences Program complies with the American with Disabilities Act in making reasonable accommodations for qualified students with disabilities.

If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.) please contact the Services for Students with Disabilities Office (located in 116 CCH) at 825-5816. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

Summer II Semester 2014
Drop Date Deadline: July 25, 2014
Texas A&M University- Corpus Christi  
Biology 3413  
Invertebrate Zoology

Tentative Lab and Field Schedule  
Summer II 2013

<table>
<thead>
<tr>
<th>Date</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, July 07th</td>
<td>No Lab</td>
</tr>
<tr>
<td>Wednesday, July 09th</td>
<td>Intro to lab, safety lecture</td>
</tr>
<tr>
<td>Monday, July 14th</td>
<td>Sandy Seacoast fieldtrip- Padre or Mustang Island</td>
</tr>
<tr>
<td>Wednesday, July 16th</td>
<td>RV Katy Trip*</td>
</tr>
<tr>
<td>Monday, July 21st</td>
<td>Rocky Sea Coast- South Jetty, Port Aransas</td>
</tr>
<tr>
<td>Wednesday, July 23rd</td>
<td>Salt Marsh/ Oyster reef- Stedman’s Island</td>
</tr>
<tr>
<td>Monday, July 28th</td>
<td>Alternate weather date</td>
</tr>
<tr>
<td>Wednesday, July 30th</td>
<td>Lab Review</td>
</tr>
<tr>
<td>Monday, August 4th</td>
<td>Lab practical</td>
</tr>
</tbody>
</table>

*Meet at TAMU-CC at 6:45am, departing at 7:00am. Please make arrangements with other course instructors about missing course work. We should return by 1:00pm.

NOTE: You **MUST** wear closed toe shoes (**NO SANDBALS**). (You will not be allowed to board the *Katy* with footwear that doesn’t protect your feet.)
Grade Appeals
As stated in University Procedure 13.02.99.C2.0L, 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.C2.0L, 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.

Disability Accomodations
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.

Academic Advising:
The College of Science and 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. The College’s Academic Advising Center is located in Center for Instruction Room 350, and can be reached at 825-6094.