
Class Time and Place: MWF 11:00 to 11:50 a.m., CS 115
Lab Time and Place: Wed 12:00-01:50 p.m., CS 226

Office Hours: Office Hours: Tue/Thu 2:00 to 3:00 pm and 5:00 to 6:00 pm, Wed 9:00 to 11:00 am or by appointment. I encourage you to email me with any questions or concerns you may have (see email address listed above).

Course Description

Invertebrate Paleontology is the branch of geology that addresses the study of ancient invertebrates. In this upper level university course we will discuss how fossils form, their importance for Earth’s history, how life evolved on planet Earth, and study the most important ancient invertebrate groups. These include small organisms such as protoctista, now extinct groups such as trilobites, and many groups still found today, including porifera, cnidaria, brachiopoda, echinodermata, mollusca and more. This course includes a mandatory field trip during which fossils will be collected and a fossil collection generated.

Prerequisites: GEOL 1403 (Physical Geology) and GEOL 1404 (Historical Geology) or permission by instructor.

Student Learning Outcomes

Upon successful completion of this course, you should

- be able to explain how fossils form.
- understand the importance of fossils for geologic studies.
- have obtained a good overview over the evolution of life on planet Earth.
- be able to recognize and describe important invertebrate groups.
- be able to place invertebrate groups into geologic context.

In addition to the content knowledge you will also practice and apply basic core competencies such as:

- critical thinking, e.g. when approaching topics using the scientific method
- problem solving by working collaboratively in teams
- communication skills, e.g. when presenting some of your work to the class verbally or turning in written assignments.
- Empirical and quantitative skills when working with numeral data, reading graphs etc.

Evaluation and Grade Assignment

Your final grade will be based on a % curve from the following point distribution:

A) Section Exams: (100 points each) 300 points
B) Presentations (2 @ 25 points each) 50 points
C) Quizzes (5x10 points) 50 points
C) Final Exam Lab (comprehensive) 100 points
D) Fossil collection and field trip report 150 points
Total: 650 points

A perfect score in this course would be to earn all 650 points available.
Final grading will be as follows:

A = 650-585 points  B = 584-520 points  C = 519-455 points
D = 454-390 points  F <390 points
Exams and Quizzes
Exams and quizzes can only be taken during the scheduled time. Should you miss an exam/quiz, it is your responsibility to contact me as soon as you return to school to schedule an appointment to make up the missed work. Only documented excuses are acceptable for missing an examination without prior notice. There will be NO make up exams/quizzes for unexcused absences! Make-up exams cannot be taken after the graded test has been returned to the class.

Presentations
Each student is required to prepare two short presentations during the course of the semester. Topics are assigned during class time. Generally, you will be required to prepare your presentation for the following lecture topic. If you come unprepared, you will disrupt the flow of class, prevent your co-students from having a good learning experience, and receive 0 points for this particular assignment. Depending on the topic, your presentations should be approx. 10 minutes long. You may choose to prepare a PowerPoint presentation, write on the board, prepare handouts, bring props…. More details will be given in class.

Class and Lab Policies
While attendance of the lectures will not be recorded by the instructor on a regular basis, regular attendance is essential to the successful completion of this course. Regular attendance of the lab sessions is required and there will be no make-up labs except for excused absences.

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. The use of cell phones, pagers, CD players, headphones and similar electronic devices is not allowed in class. Keep these devices in your bags, not on the tables. You may be asked to refrain from using a laptop in class. Cheating will not be tolerated and will result in a failing grade in the course and possible further disciplinary action by the university.

Notice to Students with Disabilities and Veterans
Texas A&M University-Corpus Christi complies with the Americans 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 Corpus Christi Hall (CCH) 116, at 825-5816. If you need disability accommodations in this class, please see me as soon as possible.

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.

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 Instructions CI 350, and can be reached at 825-6094.

Grade Appeal Process
As stated in University Rule 13.02.99.C2, Student Grade Appeals, 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 Rule 13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules Web site at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

**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. **November 15, 2013** is the last day to drop a class with an automatic grade of “W” this term.

**Reading Assignments**

All reading assignments are to be read prior to the class in which the material will be discussed. The following lecture schedule will be followed as closely as possible although some revisions may become necessary during the semester.

### Important Dates

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<thead>
<tr>
<th>September 4</th>
<th>Class begins</th>
<th>November 28-29</th>
<th>Thanksgiving holidays</th>
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<tr>
<td>October 9</td>
<td>Exam Part 1</td>
<td>December 04</td>
<td>Final Exam Lab</td>
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<tr>
<td>November 4</td>
<td>Exam Part 2 A</td>
<td>December 06</td>
<td>Exam Part 2 B</td>
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**October 11-13**  
**November 22**

Field trip  
Fossil collections and field trip report due, point deduction for collections that are turned in late (please bring collections to my office in CS 202)

### Lecture Schedule

**September**

- **Wed 09/04**: Introduction, The Geologic Timescale, Review  
- **Fri 09/06**: Phanerozoic Life and Diversity  
- **Mon 09/09**: Ch. 1: The Fossil Record  
- **Wed 09/11**: Ch. 1: The Fossil Record cont.  
- **Fri 09/13**: Ch. 2-4: Variation in Fossils, Species and Speciation, Systematics  
- **Mon 09/16**: Ch. 2-4 cont.  
- **Wed 09/18**: Ch. 2-4 cont.  
- **Fri 09/20**: Ch. 5: Evolution  
- **Mon 09/23**: Ch. 6: Extinction  
- **Wed 09/25**: Chapt. 6 cont.  
- **Fri 09/27**: Chapt. 6 cont.  
- **Mon 09/30**: Ch. 8: Paleoeocology

**October**

- **Wed 10/02**: Ch. 8: Paleoeocology cont.  
- **Fri 10/04**: Ch. 10: Biostratigraphy  
- **Mon 10/07**: Ch. 10: Biostratigraphy cont.  
- **Wed 10/09**: **Exam Part 1**  
- **Fri 10/11**: Field Trip, no class  
- **Mon 10/14**: Ch. 11: Micropaleontology – Fossil Protistans  
- **Wed 10/16**: Ch. 11: Micropaleontology – Fossil Protistans cont.  
- **Fri 10/18**: Ch. 11: Micropaleontology – Fossil Protistans cont.  
- **Mon 10/21**: Ch. 12: Colonial Life – Sponges, Archaeocythans, and Cnidarians  
- **Fri 10/25**: Ch. 12: Colonial Life – Sponges, Archaeocythans, and Cnidarians cont.  
- **Mon 10/28**: Ch. 13: The Lophophorates – Brachiopods and Bryozoans  
- **Wed 10/30**: Ch. 13: The Lophophorates – Brachiopods and Bryozoans cont.
November
Fri 11/01 Ch. 13: The Lophophorates – Brachiopods and Bryozoans cont.
Mon 11/04 Exam Part 2 A
Wed 11/06 Ch. 14: Jointed Limbs – The Arthropods
Fri 11/08 Ch. 14: Jointed Limbs – The Arthropods cont.
Mon 11/11 Ch. 14: Jointed Limbs – The Arthropods cont.
Wed 11/13 Ch. 15: Kingdom of the Seashell – The Molluscs
Fri 11/15 Ch. 15: Kingdom of the Seashell – The Molluscs cont.
Mon 11/18 Ch. 15: Kingdom of the Seashell – The Molluscs cont.
Wed 11/20 Ch. 15: Kingdom of the Seashell – The Molluscs cont.
Fri 11/22 Ch. 16: Spiny Skins – The Echinoderms
Mon 11/25 Ch. 16: Spiny Skins – The Echinoderms cont.
Wed 11/27 Ch. 16: Spiny Skins – The Echinoderms cont.
Fri 11/29 Thanksgiving Holiday, campus closed

December
Mon 12/02 Ch. 17: Dry Bones – Vertebrates and Their Relatives
Wed 12/04 Ch. 17: Dry Bones – Vertebrates and Their Relatives cont.
Fri 12/06 Exam Part 2 B
Mon 12/09 Review, Last Day of Class
Fri 12/13 Comprehensive Final Exam (11 am)

Fossil Collection and Field Trip Report
On a mandatory three-day long field trip to the Hill Country (Central Texas) and the Lake Brownwood area (N-Central Texas) you will collect fossils of various ages representing many of the phyla discussed in class. The collection and report you prepare from this trip will contribute to nearly 25% of your grade. Details will be given in class.

Lab Schedule
Every student is required to keep a lab notebook. In this book you will record drawings (include labels and scales), information about the studied organisms, questions/answers of assignments. These lab notebooks will be graded!

September
Wed 04 Introduction, Expectations
Wed 11 Marine Invertebrate Evolution through Time
Wed 18 Fossils and the Process of Fossilization, Trace fossils
Wed 25 Protists

October
Wed 02 Porifera, Archaeocyathans, and Cnidaria
Wed 09 Introduction to the geology and fossils of the field trip sites
Wed 16 Brachiopoda and Bryozoa
Wed 23 Arthropoda
Wed 30 Mollusca 1

November
Wed 06 Mollusca 2
Wed 13 Echinodermata
Wed 20 More fossils from our collection, Field Trip Collection Q&A
Wed 27 Review for lab final, Finalization of lab notebooks

December
Wed 04 Final Exam (comprehensive). Your lab notebook will be graded as part of this exam and is due on this day!
Drafting Supplies
The lab exercises (and partially the lectures) will require the use of some basic drafting supplies. The following is a list of what is needed. Please bring these items with you to each session.

- Mechanical pencil, lead size of 0.5 mm or finer
- Eraser
- Colored pencils (at least six colors)
- 12” ruler with mm markings

Listservs
Listservs you may find interesting:
geolstu-list@sci.tamucc.edu  Geology listserv
escistu-list@sci.tamucc.edu  Environmental Sciences listserv