I. COURSE:

GEOL 3441 Invertebrate Paleontology, 4 sem. hrs (3:2) . Lecture: EN 107, TR 12:30-01:45 PM; Lab: CS 226, R 2-3:30 PM

II. FACULTY: Jennifer M. Smith-Engle
Office: NRC 1111
Office Phone: 361-825-2436
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Primary Class Email: Blackboard email

III. COURSE DESCRIPTION

Invertebrate Paleontology is the study of ancient invertebrates, including the formation of fossils, origin of life on Earth, how fossils form, how life began on planet Earth, and study of major ancient invertebrate groups. This course includes a mandatory field trip to collect fossils. Prerequisite: GEOL 1404 (Historical Geology) or permission by instructor.

IV. STUDENT LEARNING OUTCOMES

Upon successful completion of this course, students will
1. Be able to explain how fossils form.
2. Be able to explain processes through which evolutionary change occurs.
3. Demonstrate familiarity with the zoological classification system used in invertebrate paleontology.
4. Be able to describe the living habits and environmental adaptations of various fossil taxa.
5. Be able to describe major characteristics, phylogenetic relationships, and temporal ranges of important fossil invertebrate groups.
V. REQUIRED TEXTBOOK


VI. GRADING

The final grade will be based on the following point distribution:
A) 3 Lecture Exams: (100 points each) 300 points
B) Weekly Lab Exercises (various weights) 150 points
C) Final Comprehensive Lab Exam 100 points
D) Fossil collection and field trip report 100 points
Total: 650 points

A perfect score in this course would be 650 points. 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

VII. EXAMS

Exams must be taken during the scheduled time. Should you miss an exam, it is your responsibility to contact me as soon as possible to schedule an appointment to make up the missed exam. Make-up exams are allowed only in cases of prior arrangement, or an excused absence. Make-up exams cannot be taken after the graded test has been returned to the class.

VIII. COMMUNICATION DEVICES DURING LECTURE

The instructor generally discourages the use of electronic communication devices during class because they distract other students from the learning experience. Such devices should be in silent mode during class. If you must answer an emergency call, please walk unobtrusively out of the class, finish the conversation, and return to your seat equally unobtrusively.

IX. STUDENTS WITH DISABILITIES

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 Driftwood 101. 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.

X. GRADE APPEALS

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. For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.

XII. 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 350, and can be reached at 825-6094.

XIII. 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.
Lecture Schedule

August
Thu 08/23 Introduction, The Geologic Timescale, Review
Tue 08/28 Ch. 1: The Fossil Record

September
Thu 08/30 Ch. 1: The Fossil Record cont.
Tue 09/04 Ch. 2-4: Variation in Fossils, Species and Speciation, Systematics
Thu 09/06 Ch. 4 cont., Ch. 5: Evolution
Tue 09/11 Ch. 6: Extinction
Thu 09/13 Chapt. 6 cont.
Tue 09/18 Ch. 8: Paleocology Ch. 10: Biostratigraphy
Thu 09/20 Extra day
Tue 09/25 Lecture Exam Part 1
Thu 09/27 Ch. 11: Micropaleontology – Fossil Protistans

October
Tue 10/02 Ch. 11: Micropaleontology – Fossil Protistans cont.
Thu 10/04 Ch. 12: Colonial Life – Sponges, Archaeocyathans, and Cnidarians
Tue 10/19 Ch. 12: Colonial Life – Sponges, Archaeocyathans, and Cnidarians cont.
Thu 10/11 Ch. 13: The Lophophorates – Brachiopods and Bryozoans
Tue 10/16 Ch. 13: The Lophophorates – Brachiopods and Bryozoans cont.
Thu 10/18 Extra day
Tue 10/23 Lecture Exam Part 2
Thu 10/25 Ch. 14: Jointed Limbs – The Arthropods
Tue 10/30 Ch. 14: Jointed Limbs – The Arthropods cont.

November
Thu 11/01 Ch. 15: Kingdom of the Seashell – The Molluscs
Tue 11/06 Ch. 15: Kingdom of the Seashell – The Molluscs cont.
Thu 11/08 Ch. 15: Kingdom of the Seashell – The Molluscs cont.
Tue 11/13 Ch. 16: Spiny Skins – The Echinoderms
Thu 11/15 Ch. 16: Spiny Skins – The Echinoderms cont.
Tue 11/20 Ch. 17: Dry Bones – Vertebrates and Their Relatives
Thu 11/24 Thanksgiving Holiday, campus closed
Tue 11/27 Ch. 17: Dry Bones – Vertebrates and Their Relatives cont.
Thu 11/29 Extra day, review

December
Tue 12/04 Lecture Exam Part 3, Last Day of Class

Lab Schedule

August
Thu 23 Lab Safety. Fossils and the Process of Fossilization.
Th 30. Trace Fossils

September
Thu 06 Marine Invertebrate Evolution through Time
Thu 13 Protistans
Thu 20 Introduction to the geology and fossils of the field trip sites
Thu 27 Field Trip Preparation (grocery shopping, loading vehicles etc.)

**October**
Thu 04 Porifera, Archaeocyathans, and Cnidaria
Thu 11 Brachiopoda and Bryozoa
Thu 18 Arthropoda
Thu 25 Field Trip Collection Q&A

**November**
Thu 01 Mollusca
Thu 08 Mollusca
Thu 15 Echinodermata
Thu 22 Thanksgiving Holiday, campus closed
Thu 29 Graptolites and Miscellaneous Groups

**December**
**Thu 06 Final Comprehensive Lab Exam 1:45-4:15 pm**

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**09/28 to 09/30 Field trip**

**November 01 Fossil collections due**, point deduction for collections that are turned in late (please bring collections to Geology Lab, CS 226)

**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 significantly to the overall course grade. Details will be given in class.