GEOL 4308– Tectonics – Fall 2016 – Kelsch

Instructor: Jesse Kelsch; Office: WSB 316; jkelsch@sulross.edu; 837-8657
Class time: MW 12:30-1:45, WSB 316
Office hours: Mon&Wed 2-3; Tue&Thur 11-1; and by appointment

OVERVIEW

This course is an integrated study of the geologic features that reveal the mechanisms of plate tectonics. It includes detailed study of collisional orogens and continental rifts; plate reconstructions via paleomagnetism and transform faults; and what we know about ancient orogens and the building of continental crust. This class is a multidisciplinary survey of lithospheric-plate geometries and interactions through time, and the resultant effects on geologic structures, topography, relief, and landforms.

REQUIRED TEXT

Plate Tectonics by Wolfgang Frisch, Martin Meschede and Ron Blakey
A few scientific papers to be assigned during the semester.

GRADING

- Grades will be calculated via the following table of total percentage value for each assignment:

exam	150
exam	150
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HW 1	50
HW 2	50
Term paper	100
Presentation	100
Final exam	150
class participation	100
total points	1000

- There will be four section exams PLUS a comprehensive final exam. Your lowest score from among the section exams will be dropped from your overall grade. In-semester exams will cover material since the last exam. The final exam will cover material from the whole semester. Exams consist of short answer, quantitative, and essay questions. Makeup exams are only permitted by arrangement made with the instructor PRIOR to missing the exam. All makeup exams are 100% essay questions.

- Two homework assignments will be given during the semester, each worth 5 percent of your final grade.

- Students will give one talk and write an associated research paper, which must include appropriately selected figures from your references and a bibliography. Figures will come from the references used to research the topic, but will be recaptioned and cited. All students are directed to review and understand the university's policy on plagiarism.

- Class participation is worth 10% of your final grade. This includes (1) completing the assigned reading before the class, and (2) participating in class discussion by (a) answering my questions and by (b) asking lecture-topic-based questions of your own when it is covered in lecture. This is a gradeable item because if you intend to participate in class, your understanding (and therefore your exam grades) will be much better than if you don't.

CLASS SCHEDULE

This schedule is PLANNED, and is subject to minor modification as necessary during the semester. Reading assignment is the material from the textbook as listed as the discussion topic for that class period. There will also be papers from the literature assigned ahead of time. These are not listed below but are also required reading.

Week of:	Reading	Topic
22-Aug	Ch 1, ch 2	Review from Physical Geology; Plate geometry & motions
29-Aug	Ch 3	Continental rifts
5-Sep	Ch 4, ch 5	Passive margins; MORs; oceanic crust
12-Sep	Ch 8	Transform margins
19-Sep	Ch 7	Subduction zones
26-Sep	Ch 7	Independent study; subduction zones; start paper research
3-Oct		Forearc subduction erosion
10-Oct	Ch 9	Terranes
17-Oct	Ch 11	Mountain building and rock uplift
24-Oct		Collisional orogens; delamination
31-Oct	Ch 6	Mantle plumes and superplumes
7-Nov	Ch 12	Old orogens
14-Nov	Ch 13	Young orogens
21-Nov		Review and prep for presentations; Thanksgiving week
28-Nov		Student presentations

Section exam dates:	
Friday	9-Sep
Monday	26-Sep
Wednesday	19-Oct
Friday	11-Nov

Final exam:
Friday 12/2 12:30 -2:30 pm

DISTANCE EDUCATION

Students enrolled in distance education courses have equal access to the university's academic support services, library resources, and instructional technology support. For more information about accessing these resources, visit the SRSU website. Students should submit online assignments through SRSU email, which require secure login information to verify students' identities and to protect students' information. Images submitted must be scanned rather than captured with a cell phone, for clarity.

The procedures for filing a student complaint are included in the student handbook. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook.

ADA

Sul Ross State University is committed to equal access in compliance with the Americans With Disabilities Act of 1973. It is the student's responsibility to initiate a request for accessibility services. Students seeking accessibility services must contact Mary Schwartze, M.Ed, LPC, in Counseling and Accessibility Services, Ferguson Hall, Room 112. The mailing address is Box C-122, Sul Ross State University, Alpine Texas 79832. Telephone 432-837-8203. mschwartze@sulross.edu

Primary Learning Objectives:

Throughout this course, students will develop the ability to:

1. Distinguish types of plate tectonic margins
2. Calculate motion vectors at plate margins
3. Describe the structural features and geophysical data at different types of plate margins
4. Describe current research findings covering the topic of mantle plumes
5. Compare modern tectonic process paradigms to those of early Earth

Methods of Assessment/Evaluation:

Primary learning objective assessment will be made on the basis of homework assignments, quizzes and lecture exams, and presentations. The assignments and exercises will develop student identification description and evaluation of geologic data and physical features. Quizzes will encourage student preparedness. Lecture exams will consist of short answer, essay and multiple choice questions to assess critical reasoning and problem solving skills. All graded coursework will generate discussion of questions missed by a majority of the class, including question and answer logic and content.