Kimbell School of Geosciences

Course Syllabus: Advanced Structural Geology and Geodynamics

McCoy College of Science, Mathematics, and Engineering

GEOS 5433-101 | Fall 2020

Contact Information

Instructor: Dr. Jonathan D. Price
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Course Objectives

The course objectives are attributes that help underpin all study of the solid Earth.

- Learn the coarse geophysical properties of the Earth
- Constrain geological processes
- Investigate the constraints on plate tectonics
- Evaluate the transport of energy
- Provide tools for examining geodynamical reactions
- Examine the fundamentals of Earth's gravity
- Introduce useful attributes to be applied to research
- Engage data and critically evaluate its merits and weaknesses
- Discuss and evaluate scientific literature

Textbook & Instructional Materials

Turcotte and Schubert
Geodynamics 3rd Ed.
The authoritative examination of applying continuum dynamics to Earth processes.

Room

Bolin 115 is both the meeting room and workroom for the course. Access by valid student ID card.

Student Handbook

Refer to: Student Handbook 2019-20

Academic Misconduct Policy & Procedures

Academic Dishonesty: Cheating, collusion, and plagiarism (the act of using source material of other persons, either published or unpublished, without following the accepted techniques of crediting, or the submission for credit of

work not the individual's to whom credit is given). Additional guidelines on procedures in these matters may be found in the Office of Student Conduct.

Grading

Table 1: Assignment weights

Assignments	Percent
1 project	20%
Participation and interaction	10%
Exam 1	15%
Exam 2	20%
Assignments	35%

Table 2: Total percentage points for final grade.

Grade	Points
A	90+
B	80 to 89.9
C	70 to 79.9
D	60 to 69.9
F	Less than 60

Work submission

Assignments may be remitted in class to the professor, in person or to my mailbox in Bolin 102. You may also scan and submit your work through email. Some assignments may require submission through 2DL.
Note: You may not submit a paper for a grade in this class that already has been (or will be) submitted for a grade in another course, unless you obtain the explicit written permission of me and the other instructor involved in advance.

Exams

Although subject to change, Exam 1 will be a 50-minute test covering the first half of the semester. Exam 2 will be a take-home exam, covering the semester.

Projects Required

A term paper will cover an individually-assigned topic.

Writing Center

Begin drafting papers as early as possible and take advantage of the MSU Writing Center, located off the 2nd floor atrium of Prothro-Yeager! Tutoring is available Monday through Thursday from 9am to 4pm; you can also find a tutor at the satellite location in Moffett Library Honors Lounge, Sunday and Thursday from 6pm to 9pm. Writing tutors will not edit your papers for you, but they will provide support and feedback at every stage of the writing process, from brainstorming to drafting, revising to proofreading.

Colloquium

Unfortunately on hiatus for Fall 20.

Late Work

Late papers are the bane of our mutual existence: they are disadvantageous to you, because you fall behind the class. They are detrimental to the class, because they hold up my grading. They are disconcerting to me, because they require my reexamination of a previously graded assignment.
This is a graduate class. You should anticipate that assignments will be multifaceted and time intensive. Start early.

Desire-to-Learn (D2L)

Extensive use of the MSU D2L program is a part of this course. Each student is expected to be familiar with this program as it provides a primary source of communication regarding assignments, examination materials, and general course information. You can log into D2L through the MSU Homepage. If you experience difficulties, please contact the technicians listed for the program or contact your instructor.

Attendance

Students are expected to attend all meetings of the classes in which they are enrolled. Students are graded on intellectual effort and performance rather than attendance, but absences or tardiness from lecture may result in a lower grade. Absence or tardiness from lab sessions will reduce your grade.
As graduate students, hopefully you realize that it's just plain rude to miss appointments without sending an apology, preferably ahead of time. Please extend the same courtesy to your professor and your classmates for this course.

Furthermore

Structural geology is challenging. These advanced topics may delve into current areas of research from which you will need to compile data to arrive at your own conclusions. The class requires your frequent attention and thought to the subjects it covers.

Change of Schedule

A student dropping a course (but not withdrawing from the University) within the first 12 class days of a regular semester or the first four class days of a summer semester is eligible for a 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Refund and Repayment Policy

A student who withdraws or is administratively withdrawn from Midwestern State University (MSU) may be eligible to receive a refund for all or a portion of the tuition, fees and room/board charges that were paid to MSU for the semester. HOWEVER, if the student received financial aid (federal/state/institutional grants, loans and/or scholarships), all or a portion of the refund may be returned to the financial aid programs. As described below, two formulas (federal and state) exists in determining the amount of the refund. (Examples of each refund calculation will be made available upon request).

Services for Students with Disabilities

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, Midwestern State University endeavors to make reasonable accommodations to ensure equal opportunity for qualified persons with disabilities to participate in all educational, social, and recreational programs and activities. After notification of acceptance, students requiring accommodations should make application for such assistance through Disability Support Services, located in the Clark Student Center, Room 168, (940) 397-4140. Current documentation of a disability will be required in order to provide appropriate services, and each request will be individually reviewed. For more details, please go to Disability Support Services.

University-Wide Policies: Campus Carry

Refer to: Campus Carry Rules and Policies

Grade Appeal Process

Update as needed. Students who wish to appeal a grade should consult the Midwestern State University Undergraduate Catalog

Notice

Changes in the course syllabus, procedure, assignments, and schedule may be made at the discretion of the instructor.

New for this fall

This course has been planned as a fully face-to-face course for Fall 2020. The class will meet in its regularly scheduled room but will utilize social distancing and an assigned seating chart. You should regularly check D2L and the email hosted via D2L for important course information.

In the event of increased incidence and risk of COVID-19 that results in the university moving back to a shelter-in-place mode, the course instruction will transition to fully online. More instructions will be given at that time.

In an attempt to provide time for face-to-face exposure to the laboratory, we will “front-load” the lab, such that many meetings for the first half of the semester will involve lab activities. The lecture material complete the semester; some of this content can be completed online, and assume full-online conditions post-Thanksgiving.

MSUTexas - Geodynamix - GEOS 5433 Fall 2020		
	Date	**Lecture subject**
		Introduction - your planet
W	8/26/2020	Planet Evaluation
F	8/28/2020	More on the planet
		Not-so-advanced structural geo
W	9/2/2020	Review of spatial techniques
F	9/4/2020	Plate Tectonics - Overview and timing
W	9/9/2020	Plate tectonics evaluations
F	9/11/2020	Squeeze box
W	9/16/2020	Squeeze box
F	9/18/2020	Squeeze box
W	9/23/2020	Plate Tectonics
F	9/25/2020	Plate Tectonics
W	9/30/2020	Stress and strain – Strain analysis
F	10/2/2020	Stress and strain
W	10/7/2020	Balancing sections
F	10/9/2020	Elasticity and Flexure
W	10/14/2020	**Exam 1**
F	10/16/2020	Rheology
W	10/21/2020	Rheological models
F	10/23/2020	Elasticity and Flexure
W	10/28/2020	GSA Meeting
F	10/30/2020	Magmatic interactions
W	11/4/2020	Heat flow – Thermal modeling
F	11/6/2020	Rheology
W	11/11/2020	Microstructure
F	11/13/2020	Magnetism
W	11/18/2020	Gravity
F	11/20/2020	Project presentations
		Post T-day: Project wrap-up and take-home final