Course Syllabus: Special Graduate Topics

McCoy College of Science, Mathematics, & Engineering
Fall 2019 GOES5082-201

Instructor Contact Information

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Course Objectives

The course is built on the evolution and exploration of tectonic landforms

- To refine student's understanding of concepts, principles, and theory in scientific investigations
- To develop the student's ability to identify key concepts relevant to their own graduate work
- To explain the role that models play in filling knowledge gaps
- To develop the student's theoretical understanding of the subject matter on which their thesis work is focused
- Development of a research proposals
- Detailed analysis of how research abstract are generated, develop scientific writing skills.
- Learning how to access, read and cite scientific sources (peer reviewed journal articles)

Course Format

- Students will participate in class discussion to improve their understanding of theory, concepts, principles, and models in relation to their thesis
- Students will supply an abstract of their thesis (or prospective thesis work)
- Students will produce a brief presentation that identifies the key concept(s) involved in their research, the principles that support the concept(s), and the larger theory that is supported by the concept
- Students will produce a figure that details the history and development of the concept(s) and the means (metrics) for evaluating the concept or principles, and supply the seminal papers that introduced the concept
- Students will identify a model(s) they will use in their thesis work and discuss the applicability of that model.

- We will look at different papers and projects

Course Assessment and Grading

You will each be assigned presentation dates for both group and individual presentations. You need to select and read a technical paper, and then share the paper's contents and your critical analysis as a 15-minute PowerPoint presentation for your class. During this course we will be a given a research proposal that was submitted for fundi through the National Science Foundation. You will be given an opportunity to analyze the intellectual merit, knowledge gap, hypothesis objectives and data used to answer the scientific question. This will make a foundation of your own thesis proposal. You will also be given a number of research problems that will form your own group research projects.

The presentation should be professional and follow the evaluation criteria outlined on D2L. These include:

- Suitable topic
- Simple backgrounds and text
- correct formatting
- Appropriate information
- Proper organization
- Professional form
- An independent and original assessment

Research Paper.

This project is geared towards multiple learning objectives:

1) Learning how to access, read and cite scientific sources (peer reviewed journal articles)

2) Develop scientific writing skills.

3) Learn how scientific papers and research questions are generated.

The Research Paper grade is 50% of final grade. The research paper grade will be derived as follows - 50% derived from submitted text and 50% derived from presentation. Presentation is limited to 15 minutes and will be followed by 5-10 minutes for questions from peers and/or guests. Presentations may be PowerPoint, video (15min) or poster-based. Research papers must be between 2250 and 3250 words (about 8 pages of text based on 11-pt or 12-pt font; word count per MSWord's word count tool) and be no longer than 10 total pages including illustrations and title page.

Papers must contain an abstract no more than 250 words (included in word count) and highlights of the paper.

Structure of the paper:

(1) Title page with title and author;

(2) Abstract and highlights;

(3) Introduction (background and rationale for paper topic choice);

(4) Methodology; Explain the choice of the specifications in data acquisition and data analysis.

(5) Discussion (what you learned and want to share as a result of your research);

(6) Conclusion (highlight of most important learning's from your perspective and why you chose the particular topic); and
(7) References (minimum of five primary references).
Figures and/or tables (with captions and references) may be included within the text or at end of paper. Format – MS Word; paper copy and electronic copy to be submitted per the course schedule/syllabus.
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Papers submitted one week late will be docked one letter grade (e.g. 10 points; thus a paper that would have received an 85% grade if submitted on time will receive a final grade of 75% if submitted one week late). Papers submitted more than two weeks late will be given a grade of zero. Papers must be submitted in both printed and electronic form (MS Word). The latter should be submitted by my University email andrew.katumwehe@msutexas.edu, with the words "GEOS 5082 Paper Spring 2019" along with your paper title on the email subject line. The research paper grade is determined based on format compliance (up to 60% of paper grade and logical reasoning (up to 40% of paper grade).

Note: You may not submit a presentation or 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.

Abstract
During this course will be required to submit an abstract as part of the research paper, the grading will be based on the suggested details.
Motivation: Why do we care about the problem and the results?
Problem statement: What problem are you trying to solve? What has been done? What remains to be done/ knowledge gap
Approach (Data and methods): (How did you do it). What were the specifications?
Data processing and analysis: How did you go about solving or making progress on the problem?
Results (What did you find): Put the results in numbers. Avoid vague, hand-waving results such as "very", "small", or "significant."
Conclusions: What are the implications of your answer? What does it mean?

Research Proposal
In submitting the research proposal the following be looked at;
Motivation: Why do we care about the problem and the results?

a) Oil and gas
b) Contamination for aquifers
c) Source methane

- Problem statement: What problem are you trying to solve? What has been done? What remains to be done/ knowledge gap

- Why did you select the study area?

An opportunity to elucidate more information in understanding the questions asked.
Objectives: Specific tasks that will be done eg
Measure methane or carbon dioxide released at specific sites.
Detailed mapping of structural lineaments associated with oil migration.

Approach (Data and methods): (How did you do it)? What were the specifications?

- Seismic data for understanding the subsurface
- Well log data
- Sequence stratigraphy
- Geophysical data

Data processing and analysis: How did you go about solving or making progress on the problem? Eg Sample analysis, Electron microscope.

Preliminary Results (What did you find): Put the results in numbers. Avoid vague, hand-waving results such as "very", "small", or "significant. " Use images, graphs and charts.

Broader societal impacts: How will the proposed activities have the potential to expand the capacity of society and the research enterprise to protect human health and the environment? Eg Broader public awareness

Budget estimates: Include the costs for data acquisition, costs for data analysis, travel to conferences and any other costs.

Timeline: When are you starting, what will you work on, what are the expected outputs?

References: Journal type bibliography

Table 1. Overall percentage value for course exams and assignments

Assignments	%age
Presentations	45
Group Presentation Evolution to exploration	45
Proposal Draft	10
Total	100

Grading Standards
This class uses the following numerical equivalents for grades:
A = 100-90% | B = 89-80% | C = 79-70% | D = 69-60% | F = 59-0%.

Extra Credit:
There will be no extra credit offered for this course. If you are struggling, try harder. If you are still struggling, come see me.

Late Work:
This class has zero room in its schedule for late of anything. You will need to complete all assignments on time. Your time of presentation is not interchangeable.

Attendance
Attendance will count towards your grade except for university excused absences. Absenteeism will be addressed on an individual basis, and the professor reserves the right to drop or fail students with poor attendance. However, any excuse (for absence or otherwise) is best when delivered ahead of the absence. Successful completion is a pathway to an estimable career path that generally weeds out those without commitment and courtesy. It reflects poor commitment to let other obligations and distractions impair your preparation towards a career; it is discourteous to not alert your professor to a delay or absence to any scheduled assembly. Unfortunately over sleeping is not an excusable absence.

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.

Student Handbook
There is no reference book for this course, Refer to: Student Handbook 2017-18

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.

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 100% refund of applicable tuition and fees. Dates are published in the Schedule of Classes each semester.

Important Dates:
Last day for term schedule changes: 01/16
Deadline to file for graduation: 02/18
Last Day to drop with a grade of "W:" 03/25
Refer to: Drops, Withdrawals & Void

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.

College Policies:
Campus Carry Rules/Policies
Refer to: Campus Carry Rules and Policies

Smoking/Tobacco Policy:
College policy strictly prohibits the use of tobacco products in any building owned or operated by WATC. Adult students may smoke only in the outside designated-smoking areas at each location.

Alcohol and Drug Policy:
To comply with the Drug Free Schools and Communities Act of 1989 and subsequent amendments, students and employees of Midwestern State are informed that strictly enforced policies are in place which prohibits the unlawful possession, use or distribution of any illicit drugs, including alcohol, on university property or as part of any university-sponsored activity. Students and employees are also subject to all applicable legal sanctions under local, state and federal law for any offenses involving illicit drugs on University property or at University-sponsored activities.

Grade Appeal Process:
Students who wish to appeal a grade should consult the Midwestern State University Undergraduate Catalog

GEOS 5082 Course Schedule

Week	Dates	Event	Presenter
1	**01/15**	Course Introduction	**N/A**
2	**01/17**	Presentation Guidance and Example **Introduction to research**	**N/A**
3	**01/22**	Paper 1 presentation	**1**
4	**01/24**	Paper presentation	**2**
5	**01/31**	Paper Presentation	**3**
6	**02/05**	Paper Presentation	**4**
7	**02/07**	Paper Presentation	**5**
8	**02/12**	Group presentation	
9	**02/14**	Group presentation	
10	**02/19**	Group presentation	**N/A**
11	**02/21**	Group presentation	**2**
12	**02/26**	Group presentation	**3**
13	**02/27**	Research presentation	**4**
14	**03/05**	Research presentation	**N/A**
15	**03/07**	Final Presentation for the Project 1	**5**
16	**03/12**	Final Presentation for the Project 2	**N/A**
17	**03/14**	Final Presentation for the Project 3	
18	**03/19**	**Spring break no classes**	
19	**03/26**	Final Presentation for the Project 4	
20	**03/28**	Final Proposal Submission	
21	**04/**	Final research Paper submission	

Notice

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