

GEOL/PHYS 4300 Introduction to Geophysics (3 credits) Spring 2021

Section 010 TR 11:00am-12:15pm
ROOM: VIN 146

Instructor: Dr. Heather L. Lehto
Email: Heather.Lehto@angelo.edu
Office hours: VIN 127, TBD

REQUIRED TEXTBOOKS:

- *Introduction to Applied Geophysics, H. Robert Burger, Craig H. Jones, and Anne F. Sheenan*

COURSE OBJECTIVES:

At the end of this course you should be able to do the following for each of the geophysical methods we focus on:

- explain the theory behind various geophysical methods
- explain the processes behind the equations that define geophysical methods
- determine the best geophysical method to study a problem,
- plan a geophysical survey
- analyze geophysical data
- develop a geologic interpretation of analyses

EXPECTATIONS:

Workload: This is senior level course which means you will be given more complicated material and activities and you will be expected to prepare for EACH class!! It is generally agreed upon that students spend one to two hours studying and preparing for each one hour spent in class. As this is a 3 hour course, that means you should be spending 3-6 hours per week studying for this course.

We will NOT be covering every bit of material from each Chapter in class, however it MAY show up on your Exam. This means you are responsible for reading each chapter and studying the material on your own in order to earn an average or better grade. Do NOT underestimate the workload for this course. Stay on top of your reading, ask questions, and participate in class and it will give you the best chance of passing this course.

Attendance: Attendance is highly recommended as we will be covering a large amount of material in lecture as well as frequent in-class activities, which will be part of your grade.

Excused Absences: Students are excused from class for university events (e.g. athletics, debate trips, and certain music trips) and circumstances beyond the student's control such as extended illness, medical emergency, and family emergency. Students will be allowed to make up any in-class assignments or Exams with the proper documentation for the absence (e.g., doctor's note for illness or injury, and/or email explaining the reason for the absence sent ASAP).

My expectations for you:

- Be prepared for lecture (do the reading prior to class, print off any relevant materials)
- Actively participate in lecture
- Take responsibility for your own learning (seek help if you are having a hard time)
- Be familiar with the course policies in the syllabus

- Do not distract others with your use of cellphones, laptops, tablets, or other electronic devices in class
- Be respectful of all persons in this classroom (arriving late, leaving early, or talking during class is distracting and discourteous)

What you can expect from me:

- Be enthusiastic and knowledgeable about the course material
- Present course material in an organized way
- Start and end lectures on time
- Set high standards for the class and help you meet those standards
- Treat you with fairness and respect

CELL PHONES AND OTHER ELECTRONIC DEVICES:

Cell phones, laptops, tablets, and other electronic devices can be very distracting to others; however they are a necessary part of our lives now. Please be cognizant of the effect of electronic devices on the attention of those around you; try not to be overly distracting. We will be using computer software for much of the course and so it is recommended that you bring a laptop if you have one. If you do not have one, you will be allowed to use a university laptop/desktop.

GRADING:

Number of Items	Name of Item	Total Percent of Grade
1	Final Exam	15%
1	Midterm Exam	15%
4	Assignments	30%
12	Problem Sets (lowest 2 dropped)	30%
1	Technical Report	10%

GRADING SYSTEM

100-90%	A
89-90%	B
79-70%	C
69-60%	D
59-0%	F

LIFE HAPPENS CLAUSE

Life happens to all of us. Despite our best efforts, some days nothing seems to go right. Your car breaks down on the way to school, you run out of the house without something and have to go back despite the fact that you were already running late, your boss calls you into work, or your child is sick and you have to go pick them up from daycare/school. Or, you get so overwhelmed that everything seems too much to deal with.

If this happens to you, please email me. We will figure out what to do to keep you on track in the course. Whether that means extra tutoring sessions, deadline extensions, or something else. Please don't suffer in silence. I want to help out, you just need to let me know what is going on.

FINAL NOTE:

This course will require a lot of work, however if you work diligently on studying and preparing for class there is no reason why you would not do well. My goal is to teach you SOME of the real-world information and skills you will need to use as a geophysicist in the field. There is a lot more information

out there and I encourage you to seek it out if you are interested in this field.

GENERAL POLICIES RELATED TO THIS COURSE

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)ⁱ
- [Angelo State University Catalog](#)ⁱⁱ

ACADEMIC INTEGRITY

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's [Statement of Academic Integrity](#).ⁱⁱⁱ

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).^{iv} The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

INCOMPLETE GRADE POLICY

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#)^v for more information.

PLAGIARISM

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)^{vi} in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).^{vii}

STUDENT ABSENCE FOR OBSERVANCE OF RELIGIOUS HOLY DAYS

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for [Observance of Religious Holy Day](#)^{viii} for more information.

TITLE IX AT ANGELO STATE UNIVERSITY

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

Michelle Miller, J.D.
Special Assistant to the President and Title IX Coordinator
Mayer Administration Building, Room 210
325-486-6357
michelle.boone@angelo.edu

You may also file a report online 24/7 at www.angelo.edu/incident-form.

If you are wishing to speak to someone about an incident in confidence you may contact the University Health Clinic and Counseling Center at 325-942-2173 or the ASU Crisis Helpline at 325-486-6345.

For more information about Title IX in general you may visit www.angelo.edu/title-ix.

REQUIRED USE OF MASKS/FACIAL COVERINGS BY STUDENTS

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory [Facial Covering Policy](#)^{ix} to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggests there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

MODIFICATIONS TO THE SYLLABUS

This syllabus, including grade evaluation and course schedule, is subject to modification. In particular, the COVID-19 pandemic may require significant changes in course delivery and content on potentially short notice.

The faculty member reserves the option to make changes as necessary to this syllabus and the course content. If changes become necessary during this course, the faculty will notify students of such changes by email, course announcements and/or via a discussion board announcement. It is the student's responsibility to look for such communications about the course on a daily basis.

ⁱ <https://www.angelo.edu/current-students/student-handbook/>

ⁱⁱ <https://www.angelo.edu/academics/catalog/>

ⁱⁱⁱ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

^{iv} <https://www.angelo.edu/current-students/disability-services/>

^v <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

^{vi} <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

^{vii} https://www.angelo.edu/current-students/writing-center/academic_honesty.php

^{viii} <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

^{ix} <http://www.texastech.edu/downloads/ttus-policy-face-coverings.pdf>

SCHEDULE: All information is subject to change.

Dates	Lecture Topic	Reading	Assignments
January 26 & 28	Syllabus Writing a Technical Report		
February 2 & 4	Seismic Fundamentals		Problem Set 1
February 9 & 11	Seismic Fundamentals Refraction Seismology	Chapter 2 Chapter 3	Problem Set 2 Shallow Seismic Refraction: Unit 1
February 16 & 18	Refraction Seismology		Problem Set 3 Shallow Seismic Refraction: Unit 2
February 23 & 25	Refraction Seismology		Problem Set 4 Shallow Seismic Refraction: Unit 3
March 2 & 4	Reflection Seismology	Chapter 4	Problem Set 5
March 9 & 11	Reflection Seismology		Problem Set 6 Seismic Reflection: Unit 1
March 16 & 18	Reflection Seismology		Problem Set 7 Seismic Reflection: Unit 2
March 23 & 25	Midterm Resistivity & Electromagnetic Surveys	Chapter 5 and Chapter 8 (pgs 499-524 & 539-548))	Resistivity: Unit 1
March 30 & April 1 April 2 (University Closed)	Resistivity & Electromagnetic Surveys		Problem Set 8 Resistivity: Unit 2 and Unit 3
April 6 & 8	Resistivity & Electromagnetic Surveys		Problem Set 9 Resistivity: Unit 4
April 13 & 15	Resistivity & Electromagnetic Surveys		Problem Set 10 Resistivity: Unit 5
April 20 & 22	Ground Penetrating Radar	Chapter 8 (pgs 524-539)	Problem Set 11 GPR: Unit 1
April 27 & 29	Ground Penetrating Radar		Problem Set 12 GPR: Unit 2
May 4 & 6	Ground Penetrating Radar		GPR: Unit 3 Technical Report Due May 6
May 11	Final Exam: May 11, 10:30am-12:30pm		