

GEY 793 – Independent Study - Seismology - Spring 2004
Room LFG 204 – MT 2:00 to 2:50 pm

Instructor: Dr. Catherine Snelson

Office Hours: TR 9:00 – 10:00 am or by appointment

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Text: Modern Global Seismology by Lay and Wallace and Handouts

Purpose of the class

This course is an introductory course in the theory of seismology. Topics that will be covered are the interpretation of seismic data and its applications to geophysics. Some computer experience would be required for some homework assignments.

Course Objectives

Upon completion of this course, you will have hopefully acquired an introductory, but comprehensive understanding of the following topics:

1. Stress and Strain
2. Wave Equation
3. Seismic waves in a flat and spherical Earth
4. Body and surface waves
5. Instrumentation
6. Earthquake analysis and synthetic seismograms

Grading

Homework Assignments/Projects	45%
Exams	30%
Final Exam	25%

Succeeding!

To do well in this class you should study and work with the material daily. At the end of each day, read your notes and make sure that you understand what you wrote. Better yet, re-write your notes in a second notebook using complete sentences: if something isn't clear in your own mind it will be readily apparent to you. You should do this no later than 24 hours after class. Even though they are not assigned, write out answers to the questions at the end of each chapter. If you develop a study group, you will learn more and the experience will be more enjoyable. Keep up with reading assignments, labs, and lecture material. It is harder to come from behind than to stay engaged daily. If you get confused or have questions that have not been resolved in lecture or laboratory, then do not hesitate to contact me. If you cannot make any of the office hours, call or email for an appointment.

Logistics and Policies

1. **Participation:** Differential Equations is required and some computer experience is necessary. Please share your position with us through class participation. Most importantly, however, if you are confused about a concept, **please ask questions** in class for clarification and further explanation. You will not be alone in your confusion. There are many ways to present this material, and I will

attempt to find one that works for you. If you do not feel comfortable asking questions in class, please write the questions down and drop them on the front desk as you enter the room and I will address them during class.

2. **Attendance:** It is important that you attend class daily because we cover a lot of material, and I will provide guidance for reading assignments and exam questions regularly. You are responsible for all material covered in lectures whether or not your absence is excused. If you miss a lecture, get the notes from a classmate. **No make-up lectures or exams will be given** except as specified below. If you are absent from either a scheduled lecture or exam without a written medical or University excuse, you will receive a zero for the exam. Excused absences are evaluated on the average of the exams actually taken. All exams will focus primarily on the most recently covered materials presented in lecture, the homework and reading assignments.
3. **Cheating, Plagiarism, and Academic Dishonesty:** You are required to be familiar with university policies and procedures in the current UNLV Undergraduate Catalog. Importantly, we follow the policies on Cheating, Plagiarism, and Academic Dishonesty that are stated in the most recent UNLV Undergraduate Catalog. In the hopes of deterring incidents of cheating and/or plagiarism this class employs a "**zero tolerance**" policy meaning that if a student commits cheating or plagiarism they receive a grade of F for the class.
4. **Copyright Issues:** The University requires all members of the University Community to familiarize themselves and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect you nor defend you nor assume responsibility for employee or student violations and fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability as well as disciplinary action under University policies. To help familiarize yourself with copyright and fair use policies, the University encourages you to visit its copyright web page at <http://www.unlv.edu/committees/copyright>.
5. **Disability Services (DS):** Learning Enhancement Services (LES) houses Disability Services, Learning Strategies and Supplemental Instruction. If you have a **documented** disability that may require assistance, you will need to contact the LES for coordination in your academic accommodations. LES is located in the Reynolds Student Services Complex, suite 137. The phone number is 702-895-0866 or TTD 702-895-0652. You may visit their website at www.unlv.edu/studentlife/les. If you have a special need/disability, please let me know outside of class sometime during the first week of the course. This helps me to adjust or alter plans so that problems can be minimized and your learning experience can be maximized.
6. **Writing Center:** Students are welcome to use the UNLV Writing Center free of charge. Consultants can assist students at all stages of the writing process. Students may make appointments by calling the center (895-3908) or in person at FDH-240. The center can be particularly helpful when you are writing or rewriting your lab field reports.
7. **Religious Holidays:** As a general rule, a student missing a class or laboratory assignment because of observance of a religious holiday shall have the opportunity to make up missed work. You must notify me by the last day of late registration, January 26, to be assured of this opportunity. If this pertains to you, a clear deadline will be set for completion of work.
8. **Nondiscrimination:** The University of Nevada Las Vegas does not discriminate on the basis of race, color, creed, religion, national or ethnic origin, gender, age, sexual orientation, disability, or veteran status.
9. **Official Extracurricular Activity:** All students who represent UNLV at an official extracurricular activity shall have the opportunity to make up assignments, but you must provide official written notification to me prior to the missed class(es).
10. **Learning Environment:** The classroom is intended to be a place of learning. As such and as specified in the UNLV Undergraduate and Graduate Catalogs, no pagers, cell phones, or other potentially disruptive devices are allowed in either lecture or the laboratory.

CLASS SCHEDULE

Wk	Date	Lecture Topic	Reading	Homework
1	Jan 19	Introduction to Seismology	Chapter 1	
2	Jan 26	Stress and Strain	Chapter 2	Homework #1
3	Feb 2	Wave Equation	Chapter 2	Homework #2
4	Feb 9	Seismic Waves in a Flat Earth	Chapters 3 & 7	Homework #3
5	Feb 16	Seismic Waves in a Spherical Earth	Chapters 3, 6, & 7	Homework #4
6	Feb 23	Seismic Waves in a Spherical Earth	Chapters 3, 6, & 7	Homework #5
7	March 1	Exam I Amplitude Analysis of Seismic Body Waves	Chapter 3	
8	March 8	Amplitude Analysis of Seismic Body Waves	Chapter 3	Homework #6
9	March 15	Surface Waves	Chapter 4	Homework #7
10	March 22	Seismic Instrumentation	Chapter 5	Homework #8
11	March 29	Exam I Earthquake Analysis	Chapters 6, 8, 9, & 11	Homework #9
12	April 5	Spring Break	No Class	
13	April 12	Earthquake Analysis	Chapters 6, 8, 9, & 11	Homework #10
14	April 19	Earthquake Analysis	Chapters 6, 8, 9, & 11	Homework #11
15	April 26	Synthetic Seismograms	Chapter 10	Homework #12
16	May 3	Final Exam		