

GEOL 707 STABLE ISOTOPE GEOCHEMISTRY Fall Semester 2011

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Office Hours: Tuesday/Wednesday 2:00 – 3:00 pm
Room and Time: LFG 201A, T/Th 11:15 – 12:45 am.
Required Textbook: Sharp, Z., 2007. Principles of Stable Isotope Geochemistry. Pearson Prentice Hall.

Course Background and Format

GEY 707 is a 3 credit graduate course in Stable Isotope Geochemistry. The class material will focus on the use of stable isotopic systems as tracers of geological processes on land, ocean, and atmosphere. The course format will be combined lecture/seminar style. Students will each lead a discussion on a particular topic based on readings from the literature. One-page summaries of each paper we read in class are required.

Course Learning Outcome and Objectives

The objectives of this class are to familiarize students with current principles and research in isotope geochemistry, and to provide a knowledge base for the student to conduct their own research using stable isotopes. These objectives will be met by a thorough reading of the textbook and selected research articles, as well as completion of assigned problem sets.

At the end of this course, the student should have an understanding of

- Fractionation of stable Isotopes
- Methods, terminology, standards, and mass spectrometry
- A survey-level knowledge of the major stable isotopic systems
- An applied in-depth research-level understanding of one or more stable isotopic systems
- Ability to use Excel to solve and graph mathematical problems
- An ability to read and understand the published literature on stable isotopic systems
- Ability to lead discussions and present material to the class

Student Evaluation and Grading policy

Student evaluation will be based on exams, problem sets, and class participation and involvement, approximately as follows:

Class participation and involvement	10%
Assignments/paper summaries	25%
Mid-term Exam (8 th week)	25%
Oral presentation of Research Project (weeks 14/15)	15%
Comprehensive Final exam	25%

Grade ranges (with + and –) will be assigned by percentage as follows: $\geq 90\%$ = A; 80 to 89% = B; 70 to 79% = C; 60 to 69% = D, < 60 = F. Points will be deducted for unexplained absences.

What do the grades mean?

“A” means exceptional performance and demonstration of expertise

“B” means “above average but not exceptional”, demonstrating proficiency but not expertise

“C” means average

“D” means below average

To obtain an “A” in this class, you will truly need to demonstrate that you possess an exceptional knowledge of the course material. If you want an “A” in this class, you need to: Read *all* of the assigned readings, attend class every day and arrive on time, know all of the terminology and be able to do the calculations we discuss in lecture and lab, perform well on exams, and do a great job on your project. Most importantly, students who are naturally curious and ask questions are more likely to achieve an “A”.

Attendance:

Attendance in lecture is required. More than three unexcused absences will result in you being dropped from the course. It is your responsibility to attend and be on time for lecture. It is the student’s responsibility to inform the instructor no later than the last day of late registration of classes to be missed for religious holidays.

Topic List: To be modified based on student interest

Background and Theory – More exciting than it sounds

Fractionation – What color M 'n M's do you like?

Tracing the hydrologic cycle – Lao Tzu would be amazed!

Isotope effects – The mountains make weather exciting

Paleothermometry – You mean this rock was baked to a crisp?

Rock-water interaction – A great way to destroy a granite

Carbon Isotopes – Why does eating corn make you feel heavy?

Strontium –What does the building of the Himalaya have to do with human migrations?

Cosmogenic (Beryllium, Aluminum, and Carbon) – Those rocks have a wicked sun-tan!

Sulfur – What's that smell?

Nitrogen – Beans?.

Policies

Cheating, Plagiarism, and Academic Dishonesty

You are required to be familiar with university policies and procedures in the current UNLV Undergraduate Catalog. (Fall 2006 – Spring 2008). Those policies are outlined in the section on Student Academic Misconduct (p. 63-66). Cheating and plagiarism will result in a failing grade for this course and may result in your expulsion from the University. We work on an honors system. If you are aware of cheating, please inform me. It is easy to detect plagiarism of web-based sources, so don't do it. To deter 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 and a notation may be added to your transcript to indicate academic misconduct.

Special Assistance

If you have a documented disability that requires assistance, you will need to go to Disability Services (DS) for coordination in your academic accommodations. DS is located within the Learning Enhancement Services office in the Reynolds Student Services Center, room 137. The DS phone number is 702-895-0866, or TDD 702-895-0652.

Religious Holidays

A student missing a class or lab assignment because of observance of a religious holiday shall have the opportunity to make up missed work. You must notify me before absences.

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.

Official Extracurricular Activity

All students who represent UNLV at any official extracurricular activity have the opportunity to make up an assignment. However, you must provide official written notification to me at least 1 week prior to the missed class(es).

Learning Environment

The classroom is intended to be a place of learning, as specified in the UNLV Undergraduate Catalog under Classroom Conduct (p. 63). Any other activities which disrupt the class or interfere with the learning experience of others will not be tolerated. If these guidelines are not followed I may, as outlined in the University Catalog, initiate an administrative drop.

Cell Phone Policy:

Cell phones have become an integral part of our society, but out of respect for your fellow students and your professor, please turn off all cell phones before entering class. Your peers' time is valuable, and please respect everyone's right to a disruption-free learning experience. It is disrupting to use cell phones or leave the room to answer a cell phone call while class is in session, so please practice respect for your fellow students. Leaving class to answer a cell phone call may be counted as an unexcused absence.

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