GEOLGY 5343: ISOTOPE GEOLOGY

University of Texas at El Paso
Department of Geological Sciences
Fall Semester 2007

Instructors:
Dr. Libby Anthony
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Dr. José M. Hurtado, Jr.
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Class Meetings:
Lectures: MW 8:30 am – 9:20 am in Geology 320
Discussion: M 03:00 pm – 04:20 pm in Geology 320
Office Hours (EA)*: MW 9:30 am – 11:00 am
Office Hours (JMH)*: W 11:00 am – 2:00 pm
*Or by appointment or just drop by!

Text:
There is no text to buy. Handouts and articles from a variety of sources will be provided throughout the semester and will be required reading for the lectures. We will also discuss selected journal articles as a group on Monday afternoons. The reading list and links to useful websites will be posted on the class website. All readings and a collection of useful books and other materials will be available to the class in room 320. These include:

1. MSA Reviews in Mineralogy, Vol. 16.
2. MSA Reviews in Mineralogy, Vol. 43
3. Uranium-series Disequilibrium
4. Neodymium Isotope Geochemistry
5. Stable Isotope Geochemistry (2nd & 3rd editions)
7. Geochemical Society Special Publication No. 3
8. Turcotte and Schubert, Geodynamics
9. Albarede, Geochemistry
10. Shirey and Walker, Re-Os System
11. Harland et al., Geologic time scale
12. Geophysical Monograph No. 95
13. Faure, Isotope Geology
14. Chart of the Nuclides
15. Noller et al., Quaternary Geochronology
16. McDougall and Harrison, ...the 40 Ar/39 Ar Method (2nd edition)
You are free to use these materials, but only remove them from room 320 to make copies, and remember to return them immediately!

Grading:
Final Project (25%): 5-page paper (15%) and 15-minute presentation (10%)
Quizzes (2, each worth 25%)
Monday Discussion (25%): leading discussion (once per student, 15%) and participation (10%)

Course Outline:
Note that the details of our schedule are subject to change as the semester progresses. Please be flexible, and let the instructors know if you have any concerns or suggestions. 

(EYA = Dr. Anthony; JMH = Dr. Hurtado)

EYA
Week of Aug. 27 Systematics
No Mon. discussion

EYA
Week of Sept. 3 Systematics

JMH
Week of Sept. 10 K-Ar and $^{40}$Ar/$^{39}$Ar; diffusion; thermochronology
EYA discussion/Andre Ellis Cr paper

JMH
Week of Sept. 17 K-Ar and $^{40}$Ar/$^{39}$Ar; diffusion; thermochronology
Mitch discussion/Ar paper
EYA out of town: Sept. 21-28, Oct. 5

JMH
Week of Sept. 24 U-Th-Pb systematics and geochronology
Sabrina discussion/Ar paper

JMH
Week of Oct. 1 U-Th-Pb systematics and geochronology
Project topics due at Monday discussion

EYA/JMH
Week of Oct. 15 QUIZ 1
Review session at Monday lecture
Joe discussion/U-Pb paper
No Wed. or Fri. lectures

EYA
Week of Oct. 15 Chemical geodynamics
Quiz 1 due at Monday lecture
No Mon. discussion

**EYA**
Week of Oct. 22
Chemical geodynamics
Keith discussion/Re-Os paper
*JMH out of town: Oct. 27-31 (GSA week)*

**EYA**
Week of Oct. 29
Chemical geodynamics
Alvaro discussion/Fe isotope fractionation in igneous systems

**JMH**
Week of Nov. 5
U-Th-He thermochronology
Eric discussion/? EYA

**JMH**
Week of Nov. 12
Cosmogenic nuclides; Quaternary geochronology;
Paleoaltimetry
*Project outlines due at Monday discussion*

**EYA/JMH**
Week of Nov. 19
**QUIZ 2**
Review session at Monday lecture
Erin discussion/? JMH
*No Wed. or Fri. lectures*
*Thanksgiving holiday*

**Dr. Borrok/Dr. Ellis**
Week of Nov. 26
David Borrok - Monday
*Quiz 2 due at Monday lecture*
Anita discussion/ ? DB
Andre Ellis - Wednesday

**EYA/JMH**
Week of Dec. 3
**Final Presentations**
*Papers due at Wednesday lecture*
No class Friday (Dead Day)
No final exam during Finals Week (AGU week).
EYA and JMH at AGU. No late papers accepted!