

ERTH 4803 (also ERTH 5609)
Advanced Radiogenic Isotope geochemistry
Fall 2018

Use of radiogenic isotope systems to understand the differentiation history and evolution of large-scale isotopic reservoirs. Data, models and interpretations behind our present day knowledge and understanding of the Earth's history. Assessment of the validity of geochronological results and interpretations.

Prerequisite: ERTH 3003. Also offered at the graduate level as ERTH 5609, for which additional credit is precluded.

Lectures/seminars: three hours a week (Wednesday 8:35-11:25) in HP 3120.

Instructor: Hanika Rizo (office hours by appointment or if my door is open).
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Course objectives: The main objective of this course is to familiarize students with different geochronological tools and their applications to a variety of systems, in order to study ancient and recent geological processes.

Major topics covered:

- Long-lived radiogenic isotope systems and their application to the study of the crust-mantle system, to zircon dating, to chemical geodynamics, etc.
- Short-lived radiogenic isotope systems (e.g. ^{146}Sm - ^{142}Nd , ^{182}Hf - ^{182}W) and their application to the study of the early history of terrestrial planets.

Evaluation:

	ERTH 4803	ERTH 5609	
Midterm Exam	30%	25%	Wed., October 17 th
Final Exam	30%	30%	Dec. exam period
Problem sets	20%	15%	
Debate/Discussion	20%	30%	

Course requirements:

- You are expected to attend all lectures
- Arriving late to class is distracting to students and the professor
- **Cell phones MUST be turned off during lectures**
- Recording (audio and/or video) of lectures or labs is forbidden unless requested by the Paul Menton Centre.
- A written medical note must be submitted if you cannot meet a deadline for an assignment or miss an exam due to illness. Please note that in this course, on all occasions that call for a medical certificate you must use (or furnish the information requested in) the form found at: http://carleton.ca/registrar/wp-content/uploads/med_cert.pdf. Note also the contents of the 'deferral page' link.
- Assignments are to be completed individually. Unless noted by the instructor, you will have one week to hand in completed problem sets. Failing to hand in an assignment by the deadline will result in the decay of your note with a decay constant of $\lambda = -0.231049/\text{day}$.
- Reading assignments are mandatory. It is the student's responsibility to come to lectures prepared.

Useful resources:

Books

- Faure, G., 1998. *Principles and Applications of Geochemistry: a comprehensive textbook for geology students*. Prentice-Hall.
- White, W.M., 2013. *Geochemistry*. John Wiley & Sons, Inc. (Also available as an e-book).
- Albarede, F., 2013. *Geochemistry; An Introduction*. Cambridge University Press. (Also available as an e-book).
- Dickin, A.P., 2005. *Radiogenic Isotope Geology*. Cambridge University Press. There is an online version of his radiogenic isotope textbook here: <http://www.onafarawayday.com/Radiogenic/>

cuLearn: Course lecture slides will be posted on cuLearn. All information concerning the course, including assignments, will also be posted on the site. Note that posting of pdf copies of journal articles on cuLearn is a violation of copyright regulations. However, all students have access to journal articles via the library electronic subscriptions and each student is allowed one copy for personal use.

ACADEMIC INTEGRITY

It is your responsibility to review Carleton's policy on Academic Integrity - Section 14 of the Calendar.

<http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/acadregsuniv14/>

Plagiarism

The instructor is required to report all incidents (or suspected incidents) of plagiarism to the Dean. All work handed in must be your own. Plagiarism and cheating are viewed as being particularly serious and the sanctions imposed are accordingly severe. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy. The Policy is strictly enforced and is binding on all students. Plagiarism and cheating – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the graduate degree. Academic dishonesty in any form will not be tolerated. Students who infringe the Policy may be subject to one of several penalties including: expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; or a grade of Failure in the course.

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline