

12:149 Elements of Geochemistry - Fall 2012

3 credit hours – Department of Geoscience

Classes: Tuesdays & Thursdays, 2:00 pm to 3:15 pm, Room 134 Trowbridge Hall

Instructor: Dr. David W. Peate

office: B21B Trowbridge Hall

office phone: 335 – 0567

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office hours: Tu 3:30 pm – 5:00 pm, Wed 2:00 pm – 3:30 pm, & by appointment.

Prerequisites: Earth History & Resources (12:001/3) or Introduction to Geology (12:005); Intro. Chemistry (4:008 or 4:014); Calculus (22M:026); or by consent of instructor

Useful textbooks (note we will not follow a particular text in the class):

* Misra, K.C., 2012. *"Introduction to Geochemistry: principles & applications"*, Wiley-Blackwell.

Faure, G., 1998. *"Principles and Applications of Geochemistry"*, 2nd ed., Prentice Hall.

McSween, H.Y., Richardson, S.M. & Uhle, M., 2003. *"Geochemistry: pathways and processes"*, 2nd e.d., Columbia University Press.

Walther, J.V., 2009. *"Essentials of Geochemistry"*, 2nd ed., Jones & Bartlett.

additional material from Bill White's on-line geochemistry text book (see me for copies) – a bit advanced.

Course objectives: This course provides students with a basic introduction to geochemistry. It introduces the application of chemical principles to the solution of geological problems concerning the Earth and environmental processes. Major topics of study will include: origin of the elements, chemical differentiation of the Earth and the Solar System, geochronology, applications of radiogenic and stable isotopes, trace element behaviour, chemical equilibrium, elementary thermodynamics and kinetics, carbonate and silicate stability relationships, chemical weathering, oxidation-reduction reactions, characterization of surface waters, and ocean chemistry.

Grade proportions:

Problem sets / paper 50%

Mid-term exam 20%

Final exam 30% **(date will be announced later in semester)**

Attendance & class participation: Students are expected to attend all classes, and if a class is missed they are expected to get the pertinent information from another student who attended the class. Attendance will be used to decide borderline grades. Students will be permitted to postpone due dates for exercises and make up exams that are missed because of illness, mandatory religious observations, certain University activities, or unavoidable circumstances, as long as the absences are adequately explained to me either in writing (e-mail is okay) or verbally.

ICON: All course information such as lecture notes, course syllabus, and exam schedules, can be found on the course ICON at <http://icon.uiowa.edu> Check it regularly as course announcements will be posted here as well. Use your HawkID and password to login.

Amount of Work Expected: The College guideline is that one semester hour of credit is the equivalent of approximately three hours of work (class time + out-of-class preparation) each week over the course of a whole semester. In a typical lecture/discussion course, each hour of class normally entails at least two hours of outside preparation for the average student (e.g., in a four-credit-hour lecture course, standard out-of-class preparation is eight hours per week). This standard is the basis on which the Registrar's Office assigns hours of University credit for courses.

Department of Geoscience Syllabus Information:

Department Office: 121 Trowbridge Hall

Telephone: 319-335-1818

Department Chair (DEO): Prof. M.K. Reagan

DEO Office: 121C TH

DEO Telephone: 319-335-1820

DEO Email: geology-deo@uiowa.edu

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at <http://clas.uiowa.edu/students/handbook>.

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences. (*Operations Manual*, [III.15.2](#). k.11.)

Accommodations for Disabilities

A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/~sds/ for more information.

Academic Honesty

All CLAS students have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled ([CLAS Academic Policies Handbook](#)).

CLAS Final Examination Policies

The final examination schedule for each class is announced around the fifth week of the semester by the Registrar. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the dates and times of each final exam, the complete schedule will be published on the Registrar's web site.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident ([CLAS Student Academic Handbook](#).)

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI [Comprehensive Guide on Sexual Harassment](#) for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety [web site](#).

Rights and responsibilities in the classroom

The College's statement on student rights and responsibilities can be found at: <http://www.clas.uiowa.edu/students/handbook/x/>.
