

## **Introduction to Geochemistry**

Earth Sciences 208

Section: D100

Term: 2014 Spring

Instructor: Dr. Dan Marshall

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Discussion Topics: General: REQUIREMENT DESIGNATION: Q

- Introductory concepts of geochemical systems:

Nucleosynthesis, Atomic structure, Periodic Table, Cosmic Evolution

- Global Chemical Differentiation

- Chemical Bonds

- Ionic Substitution in Crystals

- Thermodynamics

- Stable Isotopes

- Radiogenic Isotopes and Geochronology

- Stable Mineral Assemblages, Phase Diagrams

- Geothermobarometry

- Atmospheric/Oceanic Evolution and Chemistry

- Geochemical Cycles

- Crustal Fluids

- Simple and Multicomponent Mixing

- Geochemistry of the Major Rock Types: Sedimentary Rocks, Igneous Rocks, Metamorphic Rocks

Grading: Midterm examination 15%

Laboratory assignments 15%

Final lab examination 25%

Presentation/paper 10%

Final theory examination 35%

(A+: 90-100 % A : 85-89.99 % A- : 80-84.99 % B+: 77-79.99 % B : 73-76.99 % B- : 70-72.99 % C+ : 67-69.99 % C : 63-66.99 % C- : 60-62.99 % D: 50-59.99 % )

Required Texts: Principles and Applications of Geochemistry, 2nd edition, Gunter Faure, Prentice-Hall Inc., 1998, ISBN 978-0-02-336450-5

Recommended Texts: None.

Materials/Supplies: Calculator

Prerequisite/Corequisite: Prerequisites: EASC 202, CHEM 121, CHEM 122, CHEM 126.

Notes: Absence from class or from lab can make learning the course material difficult and thus missing classes or labs may result in missed material and poorer grades. The Professor and the Teaching Assistant(s) are unable to provide individual tutoring for students who miss classes or labs.

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