Groundwater Contamination and Transport

Earth Sciences 410

Section: D100

Term: 2010 Spring

Instructor: Dr. Diana Allen
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Discussion Topics: General:

Groundwater contamination can be a significant environmental problem leading to degradation of the quality of fresh water both in the subsurface and where groundwater discharges to surface water bodies. This course introduces the basic principles of contaminant hydrogeology by discussing natural groundwater quality with regardto its evolution in natural systems, sources of contaminants, for example from mine waste, agriculture, saltwater intrusion, and industrial activities, and the processes and principles governing mass transport, includig advection, dispersion and diffusion. The course also explores methodologies for site investigation as well as various remediation methods that have been developed to clean up groundwater.

Course Topics:

Natural Groundwater Quality

Groundwater Contaimnation

Mass Trasnport

Site Investigations

Groundwater Remediation

Course Organization:

1 two-hour lecture and 1 three-hour laboratory. The assignments are based on the theory part of the course, and these will be distributed during lab time.

Grading: 1. Assignments 25%

2. Mid-Term Exam 20%

3. Term Project and Presentation 20%

4. Final Exam 35%

Groundwater Contamination and Transport

Required Texts: Fetter, C.W., 1999. Contaminant Hydrogeology, 2nd Edition, Waveland Press, 500 pp. ISBN 978-157766-583

Selected Readings

Recommended Texts: None.

Materials/Supplies: Scientific calculator.

Prerequisite/Corequisite: Prerequisites: EASC 412

Notes: Detailed course notes will be available online.