

Fall 2008 - Connections: Earth Explorations
(a.k.a. Geology for Homeowners)
LAS 125X, section F

Wednesdays 4:10 – 5:00 PM – 277 Science I

Instructor: Prof. Cinzia Cervato, 224 Science I, cinzia@iastate.edu

Office hours: Tue/Thur 2:30-3:30 PM or by appointment

Professional consultant: Tom Parham (MS cand. geology), 260 Science I, tparham@iastate.edu

Goal: During this semester we will be engaged in exploring the geological factors involved in owning a house in different parts of the United States. We will consider the geological hazards that each homeowner should be aware of. We will also look at the energy, water, and mineral resources that are needed to build and maintain a house, and explore ways to utilize them more efficiently.

Course outcomes: The course is designed to allow you to use geology even if you have minimal or no geology training. Our nation has lost billions of dollars by failing to educate the public about geology. The result is that most homeowners are unaware of and unprotected against the most obvious and common natural hazards. In this course you will learn material that will assist you in the most important purchase of your life: buying a house.

WebCT: The course has a WebCT page that will mainly be used for communication and online discussions. I will post PDF files of selected chapters of the book: “Citizens’ guide to geologic hazards” (CGGH) that you may print out or read online. If you come across interesting articles during the semester, I encourage you to post them as well. These readings are the only learning material that we will use in the course, taking the place of a textbook and saving you some money. I expect you to come to class having read the relevant chapters.

Course design: During the first class period, we will create six teams of professional geologists. As professionals, you will assist an imaginary wealthy businesswoman who is considering buying a vacation home. She cannot make her mind up on the location and she is evaluating four cities and waterfront lots. You need to present to her the risks that are involved in each location and make recommendations on building standards and insurance.

Each student will work with his/her team members throughout the semester to evaluate geological hazards and the environmental impact of the house. Students will select their professional role among key professional pathways: hydrogeology, seismology, volcanology, economic geology, petroleum geology, and environmental geology.

During the first part of the semester, we will explore the issues facing homeowners in four US cities: Des Moines (IA), Seattle/Tacoma (WA), Los Angeles (CA), and Miami (FL). Four properties have been selected among the ones for sale in August. Three professional teams will be assigned to present their evaluation of the hazards for each of the four sites over the span of two weeks to allow for preparation and a thorough discussion. A checklist will assist the presenting teams in their preparation and you can also “hire” the class’s “professional consultant”, Tom Parham, to guide you in putting together a thorough presentation. The other teams will also be prepared to answer questions about their professional perspective for the region. After a question/answer session with the rest of the class, the non-presenting teams will vote on the performance of the two presenting teams. At the end of each two-week session, the class will decide which type of insurance homeowners in each of the four areas should buy.

During the second half of the semester, we will focus on the environmental costs of building a home in the US. Two professional teams will present their findings to the rest of

the class and receive points for their participation. Teams get two points for a win and one for a draw. Non-presenting teams can also get points for participating through questions and comments. Participation is worth one point. At the end of the semester, the top team(s) will receive a prize.

Attendance: this course has a satisfactory/fail format and your success will be based on your attendance. If you are unable to attend a class period, please inform your team members and me through WebCT. If you miss more than two classes, you will get an F.

Special accommodations Please inform me as soon as possible of any unusual circumstance that may hinder your performance (e.g. physical disability, learning disability, family illness). If appropriate, bring a copy of your Student Academic Accommodation Request (SAAR) to me. The necessary accommodations will be made as warranted. If you have any doubt or question about requesting such accommodation, or if you do not have a SAAR, contact the Disability Resources staff at the Dean of Students Office (Phone 294-6624).

Course schedule

Date	Topic	Presenting teams	Reading material
Aug 27	Exploring geologic hazards and homeowners' insurance policies; team assignment		
Sep 3 and 10	Owning a home in Des Moines, IA and geohazards	Hydrogeologists, economic geologists, and environmental geologists	CGGH: Reactive minerals, Radon, Floods
Sep 17 and 24	Owning a home in Los Angeles, CA and geohazards	Seismologists, volcanologists, and petroleum geologists	CGGH: Earthquakes
Oct 1 and 8	Owning a home in Seattle, WA and geohazards	Economic geologists, seismologists, and volcanologists	CGGH: Volcanoes
Oct 15 and 22	Owning a home in Miami, FL and geohazards	Environmental geologists, hydrogeologists, and petroleum geologists	CGGH: Subsidence, Coastal Hazards
Oct 29	What it takes to build a house: construction material	Economic geologists and seismologists	
Nov 5	What it takes to build a house: energy	Petroleum geologists and volcanologists	
Nov 12	Preparation for Brunner Museum presentation	All teams	
Nov 19	"Images of a Shattering Earth" – Brunner Museum exhibit	All teams – <i>details TBA</i>	
Nov 26	<i>Thanksgiving – No class</i>		
Dec 3	What it takes to build a house: location	Environmental geologists and hydrogeologists	
Dec 10	Summary of course outcomes, evaluation, and awards		

What does a(n) do?

Economic geologist: he/she locates materials that can be mined or extracted. This goes from basic construction materials like clay, sand, gravel, and limestone to metals (e.g., iron, aluminum, gold, silver, copper).

Environmental geologist: He/she studies the interactions between the environment and geologic materials, and the contamination of geologic materials (e.g. acid mine drainage, oil spills, waste disposal). He/she also studies soils and the stability of slopes and of the surface.

Hydrogeologist: He/she studies groundwater and surface water movement and interaction with rocks and soil. He/she also assists in locating water for residential areas and monitoring its quality and quantity.

Petroleum geologist: he/she locates and assists in the extraction of energy resources, mainly fossil fuels like coal, methane, and petroleum.

Seismologist: he/she studies the physics of the Earth's interior and monitors earthquakes and assesses seismic risk.

Volcanologist: he/she studies volcanoes, and monitors volcanically active areas as possible sources of energy and for their potential hazards. He/she also studies geothermal fields and the distribution of heat in the Earth's interior.