

Geology 110: People, Rocks, and Fire

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Welcome!

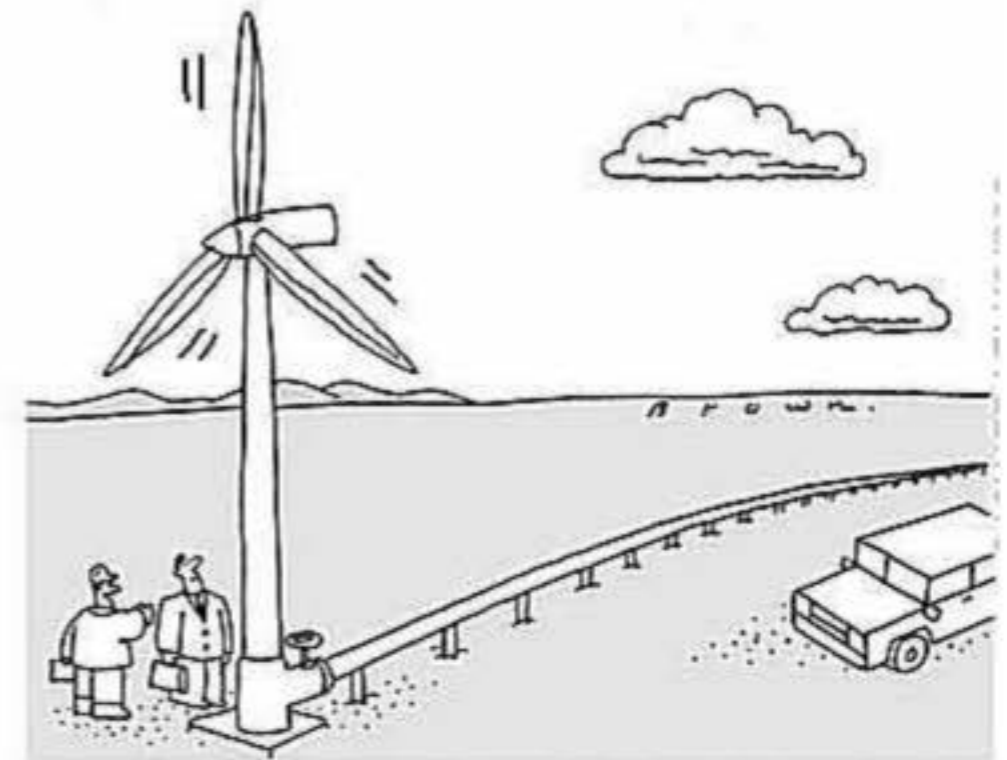
Hello everyone, and welcome to the Geology 110 course website. This course is a collaborative project with the goal of understanding how past societies have adapted to widespread changes in their foods and fuels, and how our current society can learn from their successes and failures in our contemporary global energy context.

This course is also part of the UO Science Literacy Program, a multi-department initiative to bring science enthusiasm, confidence, and comfort to people with other primary pursuits.

Our work is to understand energy sources currently in transition: which ones are under pressure to be changed, what those pressures are, and how energy policy might work either to promote or to hinder these changes. We will be particularly interested in ways that groups of people make hard choices, or don't, in the face of energy scarcity, and the ways people use quantitative information vs. subjective impressions to make decisions.

Within this context, we'll be using verifiable data to separate scientific truths from matters of belief, perception, and opinion. As we'll see, the two are tightly interwoven, and both are essential to appreciate.

Professor Alan Rempel



"This is our most successful project. When we dug the footing for the wind turbine, we struck oil."

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How to Study

Every central idea of this course is present in a class worksheet, a section activity, an exam or quiz, or another handout. You should have these already, but just in case, they're ALL provided at right.

To study, go through the worksheets, and make sure you understand each question, its answer, and any comments we've made. When you discover topics that come up repeatedly, like heat and work or social decision-making, be sure you understand their importance in the big picture!!

When in doubt, look again at the slides from class, linked on their respective pages. Look again at the readings, watch the movies, talk with your classmates, come to office hours, or email us. We haven't provided the answers to worksheets after the midterm, because that would deprive you of the valuable work of putting the ideas together yourself!

If you follow this process, and respond to questions directly and completely, you'll do great on the exam.

Exam Time: 10:15 am, Thursday, Dec. 8.

Class Worksheets

- Week 1:** [Bike article](#) [Peace Rats handout + answers](#)
- Week 2:** [Easter & Vikings worksheet + answers](#); [Photosynthesis role-playing notes](#)
- Week 3:** [Agricultural Society Review Questions + Answers](#); [The New Harpoon](#)
- Week 4:** [Population Dynamics Worksheet + Answers](#); [Correlation, Causation, and the Industrial Revolution + answers](#)
- Week 5:** [Midterm Exam + answers](#); [Coal Data, World](#); [Coal Data, North America](#) (to remind you of the graphing project)
- Week 6:** [Turbines worksheet](#); [Efficiency Dilemma worksheet](#); [Efficiency data](#)
- Week 7:** [Grid worksheet and smart meters](#); [Sun, Water, Wind, & Nukes worksheet](#)
- Week 8:** [Oil formation and extraction](#); [Petroleum systems](#); [Unconventional oil](#);
- Week 9:** [Green Buildings worksheet](#); [Alternative transportation](#)

Section Worksheets

- Week 1:** Intro survey
- Week 2:** [Keystone graph worksheet + answers](#)
- Week 3:** [Krugman & Nelder worksheet](#)
- Week 4:** [Graph-interpretation exercise + select answers](#)
- Week 5:** [Heat and Work worksheet](#)
- Week 6:** Term Project Discussion - no handouts
- Week 7:** [Sun & wind paths worksheet](#)
- Week 8:** Exit Survey
- Week 9:** Thanksgiving week, no section

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Evaluation

Final Grade Composition

- Homework, Class, and Section Participation: 40%
- Term Project: 20%
- Midterm Exam (10/24) + Final Exam (10:15, 12/08): 40%

Rubric

Grade	Description
A	Demonstrates a thorough and nuanced understanding of the topic or issue; arguments and connections are explained clearly and convincingly. Written and oral presentations are well-organized, visually attractive, and free of distracting errors. Participation is always active and constructive.
B	Provides solid explanations accompanying accurate responses, with few or minor errors. Presentations are organized with some distracting errors. Participation is mostly active and constructive.
C	Provides minimal explanations for responses, with multiple or substantial errors. Presentations are disorganized, messy, and/or contain numerous distracting errors. Participation includes distracting behavior (e.g. surfing, texting, dismissive comments)
D	Work is turned in but demonstrates minimal understanding of the topic or issue. Participation is minimal or inappropriate.
F	Work demonstrates very little understanding of the topic or issue, is missing, or is unacceptably late. Participation is absent.

Homework

Homework will include reading, research, writing assignments, and problems. These are detailed on each week's page under Assignments.

In-Class and In-Section Work

In class and in section, you will be asked to work both individually and in groups to discuss, describe, graph, map, demonstrate, and otherwise engage with course material. *Participation is worth so much that you cannot pass the class without it.* Expect to participate, and to turn in work, at every class and section. Work produced in class should be organized, but it's expected to show the working process, with cross-outs, corrections, and revisions, so normal "neatness" standards will be relaxed. Surfing and texting will distract you, your classmates, and your instructors, so please refrain from these in class.

Appearance Matters

Humans are visual creatures: we sense patterns rapidly and rely on them to help us understand everything from forests to cities. We also instinctively understand a mess. A mess is something that hasn't gotten enough energy, something neglected or unimportant. This is not the impression you want your work to give.

Graphics are also essential to understanding data. A million dollars is a lot of money. A billion is even more. But to understand how *much* more, without the fun of spending one and then the other, we need a graph. Graphs can be as intriguing as the best writing: pay attention to the graphics you encounter, and incorporate their lessons into your own.



"I expect you all to be independent, innovative, critical thinkers who will do exactly as I say!"

Writing Matters

The ability to write clearly, concisely, and persuasively is essential to professional life. In today's workforce, capable writers are recruited heavily, and their writing becomes the voice of their work unit. Those who write most clearly are also perceived to *think* most clearly, and they are given the most interesting and challenging projects as a result. This is as true of architecture offices as it is of research laboratories.

Excellent writing demands attention: note the elements in course materials that persuade you, intrigue you, or distract you. Pay attention to the way a train of thought is developed and to the way an argument is advanced. This will not always be easy, as good writing does not call attention to itself. But pay attention anyway.

Excellent writing has:

- a clear logical flow
- valuable thought contributed by the writer
- conciseness
- liveliness
- relevance
- persuasiveness

Other traits ("good organization", "perfect grammar and spelling") are vehicles to reach the standards above. A document littered with errors can't be lively and engaging because the carelessness is too distracting. An argument without organization can't develop a clear logical flow, so it has little chance of persuading the reader of anything.

Hendrik Hertzberg, senior editor of *The New Yorker* magazine, provides excellent examples to follow in his articles [Some Nukes](#) and [Cooling on Warming](#).

If You're Sick...

If you're sick, please stay home and email your section leader. If you come to class sick, we will ask you to go home. If you miss more than one class, we'll give you alternative work.

Late work will be assessed an arbitrary grade penalty on a case-by-case basis.