OVERVIEW

Planet Earth operates like a big and beautiful machine, on which humanity is dependent. You will leave this course knowing how the earth works as a coherent system to create the landscapes, seascapes, and climates we depend on and how the discipline of geoscience contributes to human endeavors. Your sense of time and place will be altered. You will "grok" the narrative: "No rock. No ecosystem. No culture."

FORMAT

Administratively, this is a blended course combining online work and in-class attendance. Socially, it combines online student discussion groups, in-class group meetings, student self-introductions, and (near the end of the class) theatrical or musical presentations of student projects. Technologically, it involves HuskyCT with virtual field trips, slide-shows, and lightboard presentations.

INSTRUCTOR

Robert M. Thorson, Professor of Geology, 237 Beach Hall, 860-486-1396, Office Hours Tuesday & Thursday XXXX or by appointment. All student correspondence will be done through the HuskyCT. Assisting the instructor will be a Head Teaching Assistant, who will handle all front-line inquiries regarding assignments, exams, and grading.

CURRICULUM

This is a non-lab science literacy course meeting UConn's CA3 General Education requirement. It can be upgraded to the lab science course for the CA3-Lab General Education requirement with the addition of GSCI 1052 taken concurrently or subsequently. The catalog description reads: "Three credits. Three class periods... Origin and history of planet Earth, emphasizing how rock, air, water, and life interact at different scales to produce the earth's crust, landforms, life systems, natural resources, catastrophes, and climatic regimes. Provides a scientific context for human-induced global change. CA 3."

COURSE DESCRIPTION

Expectations:

Most of you enrolled in this course to jump the hurdle of the general education science literacy requirement at UCONN. You're here to "get" the credit, to earn a decent grade, graduate, and then move on with the rest of your life.
I'm fine with this plan, and will help you meet that goal by providing an enjoyable course that's fair to everyone. But why not come with great expectations? Why not arrive planning to get your money's worth? Or, better yet, obtaining geo-content that's useful to your life right now? Perhaps to enhance your sense of place? Perhaps to help you live more safely and travel with greater interest?

Back in the Paleozoic of my own life, I was once in your shoes. Starting college, my high-school buddy advised me to take geology to meet the science requirement because he thought it was easier than physics or chemistry. I took his advice, was dazzled by how well the subject fit my skills and interests, and have been enjoying my geo-career ever since. If you find this course half as fascinating as I did when I was in your shoes, you might want to consider majoring or minoring in this field, as I did. If so, don't hesitate to contact me. It's a personal reward to me for help students find their path through college.

**Learning Objectives:**

By the end of the course, you (not the default anonymous you, but the living, breathing, personal you) should:

- **Know** that "geoscience" is the re-branded name for the historical discipline of geology, which has been updated by technology and broadened in scope to the planetary scale.
- **Realize** that geoscience plays an important role in human environmental affairs at all scales. This is particularly true with climate change, a subject that geologists invented several centuries ago. Climates may play themselves out at the surface, but they come from underground.
- **Grasp** the immensity of deep time, not as a big number, but in emotional, psychological, and philosophical terms.
- Be able to **imagine** yourself working either as a professional geologist, or working with one during your future career in business, engineering, law, medicine, the humanities, or in the home. If you have a sense of how doctors, lawyers, engineers, artists, and bankers "behave," when why not add "geologist" to that list?
- **Understand** that every landscape we see, whether intimate to sublime, results from the interaction between three earth-scale subsystems: tectonic, hydrologic, and organic.
- Have a much **better feel** for what science is, how its inquiry takes place, and how the game is played at all levels in all places.

**Course Narrative**

We've structured the delivery of the content as though it were a book of nonfiction narrative.

The **Prologue** sets the tone, explaining why the book is worth reading and how it may enhance your life. The actual story begins with the creation of **Earth as a Planet** ripe with possibilities. We then explore who this character is and how it works, in this case via the module **Earth as a System**. There we find three interacting components, one moving below the surface and powered by geothermal energy, one moving above the surface and powered by solar energy, and one operating on the living surface itself and powered by interactions.
Having learned how the earth works as a unified planetary system, we then move on to *Earth as a Story*. This section begins with lessons in how to read that story from the rocks, with a focus on the useful skills of geological imaging, mapping, dating, and data analysis. Following this section on methods, we pursue multiple threads of the earth's story: the thread of organic evolution and fossils, the thread of climate change and life's response, the thread of crustal movements providing the raw materials for landscape shaping, and the thread of surface processes responsible for creating river, coastal, desert, glacial, and other curious places.

This brings us to *Earth's Human Moment*, spanning the last 0.000000004 % of Earth history, the entry of a brainy upright ape called *Homo sapiens* into geological history. Within the last two centuries, and through the use of earth's material and energy resources, we've become the dominant agent shaping the planet, forcing the need for a new geological epoch, the Anthropocene. In sequence, we examine how humans have converted the planet to their use, the impacts these conversions have led to, and the opportunities and vulnerabilities we still face.

The course ends with an *Epilogue*, in which we reflect on the role of geologists as scientific detectives who work outdoors, a career field with great job prospects ahead.

As with every biography, there are key moments that shape the rest of the story. For earth, one of the first was its wholesale melting, followed by the birth of the moon, the filling of the seas, and the origin of life. After that there were near-escapes from icy cold, simmering heat, colliding asteroids, and suffocating gasses. One grand result of all this was the spectacle of organic evolution, the emergence of *Homo sapiens*, and the discovery of fire, which led to the mining of coal and thence human domination of the planet for better and for worse.

**Pedagogy**

This section is very detailed for the college offerings, but left blank here. A mix of lectures, discussions, demonstrations, breakouts, journals, discussions, and so-forth that must be adapted to the high school classroom.

**Grading**

This section is very detailed for the college offerings, but left blank here. A mix of exams, preparation quizzes, assignments, etc. Grading for all subjective material will be done using a posted rubric. The general approach uses the CSP Rubric in which:

- C stands for "Completion" and is a numerical answer to the questions: "Did the student answer the question? Does it show enough "work" or task commitment? Does it leave material out?"
- S stands for "Sophistication" and is a numerical answer to the question: "How good is the answer with respect to the breadth of knowledge combined with insight/intelligence/creativity?"
- P stands for "Presentation" and is a numerical answer to the questions: "How easy is it to get through? Is it well written? Is it padded with extra verbiage? Is it late?"

Course points will be summed, with letter grades assigned mainly by the numbers, but with extenuating circumstances kept in mind.

**MATERIALS NEEDED**

*Textbook.* Essentials of Geology, 6th Addition by Stephen Marshak (New York: Norton, 2015). Bound, 3-ring binder, and electronic versions of the course are available. Used and rented copies are abundant. *Clickers.* These are required for use in the class, either adapted through cell phone or purchased.

**STUDENT RESPONSIBILITIES**

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include: The Student Code (Academic Integrity, Resources on Avoiding Cheating and Plagiarism), Copyrighted Materials, Netiquette and Communication, Adding or Dropping a Course, Academic Calendar, Policy Against Discrimination, Harassment and Inappropriate, Romantic Relationships, Sexual Assault Reporting Policy.

**DISABILITY**

Students needing special accommodations should work with the University's Center for Students with Disabilities (CSD). You may contact CSD by calling (860) 486-2020 or by emailing csd@uconn.edu. If your request for accommodation is approved, CSD will send an accommodation letter directly to your instructor(s) so that special arrangements can be made. (Note: Student requests for accommodation must be filed each semester.)