

University of Georgia Interdisciplinary Field Program

Geology Syllabus

GEOL 2350H-L – HONORS PHYSICAL GEOLOGY + LAB (4 hours)

GEOL 2360H-L – HONORS HISTORICAL GEOLOGY + LAB (4 hours)

GEOL 4330-L – GEOLOGY OF NORTH AMERICA + LAB (4 hours)

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The course syllabus is a general plan for the course; deviations announced to the class by the instructors may be necessary.

Course Description

Geology 2350H-L (Physical Geology) This course is designed to give students a basic understanding of the natural physical processes occurring either on the surface or the interior of planet Earth. We study interior processes through the characteristics and origins of minerals and rocks; the processes of plate tectonics; and structure of the Earth's interior. We study surficial processes that shape and affect the Earth's surface and build landscapes: volcanism, earthquakes, coastal erosion, and global climate changes. We study natural Earth resources and human interaction with these resources. Students will learn some of the techniques scientists use to understand and monitor these processes. In addition, students will gain an appreciation for the ways in which physical geology affects our daily lives.

Geology 2360H-L (Historical Geology) is a course designed to teach the student how the Earth - it's continents, ocean basins, landscapes, and biosphere - have been continuously changing since the time Earth formed 4.6 billion years ago. Students will learn the measurement of geologic time; physical and biological history of Earth; development of the major features of the Earth, with particular emphasis on North America. We also study the geologic record of global change, global geochemical cycles, sea-level and climate change, biodiversity, evolution and paleontology, and ecological changes and extinctions. We place particular emphasis on how these changes are recorded in rocks and fossils.

Geology 4330-L (Geology of North America)

This course specifically focuses on the evolution of the North American continent through time: Stratigraphic, sedimentary, and magmatic history and tectonic development of various regions since the early Precambrian; Paleontological record of environmental and biological changes; Origin of energy, mineral, soil, and water resources; History of human habitation and resource utilization; Current environmental hazards and challenges.

Course Assignments

Course readings, podcasts, and films: Required readings for this course include those compiled in the course packet (from a variety of sources). Required films are available on your course tablet. Due to the structure of the course, readings and films are assigned on a daily to weekly basis, and you are expected to keep up with them. You will be expected to integrate the material from the readings into your field notes by making connections between the readings and your observations. All information included in the readings and on the films is fair game for exams.

We have also compiled a packet of context readings that are intended to supplement, the IFP stops. In some cases, this material will correspond with what you learn at the sites, and in other cases, it will provide a different perspective on the site. These are not required readings, but they do provide valuable contextual information related to the geological setting of the region. Please draw upon these resources, as needed, to help you understand the geological context along the way.

Field Notebooks: Fieldwork is an essential component geoscience. Learning to systematically record geological observations in a field notebook is a critical skill you will develop on IFP. You may also use the IFP field notebook to record lecture notes and to address assigned focus questions, for Geology and the other courses on IFP.

To keep your notebook organized, you should maintain a Table of Contents at the beginning of each field notebook that includes page numbers, dates, titles of items/field observations, and a consistent course label (e.g., ANTH, ECOL, GEOL or A, E, G, etc.). You should also check that each page in the field notebook has a page number, date, and title that matches what is in the table of contents.

We will evaluate and score your field notebook entries for clarity, detail, thoroughness, and how well you connect your observations to the scientific concepts you are learning:

Mark	Points	Grade
✓+	95%	(A)
✓	85%	(B)
✓-	75%	(C)

To earn full credit, each field notebook entry should include:

- (1) Required components (e.g., date, time, location, discipline)
- (2) Sketches with labels and/or bullet point notes of observations. Sketches should each have an estimated scale indicated for reference.
- (3) Evidence of independent thoughts & observations addressing the essential questions provided for the field activity. If there is a culminating project for the field experience, your field notebook should contain all pertinent data and observations used for completion of the project. Your notebook should also include any synthesis of ideas or connections that can be made between GEOL/ECOL/ANTH.

Exams: There will be 4 exams for this course. Exams will be in essay and short answer format and will usually focus on the material covered since the previous exam. However, as geoscience is a cumulative learning experience, where new facts and theories are best understood by expanding on previously learned material, exams will undoubtedly be of a cumulative nature, and will require you to draw upon examples and concepts learned in other sections of the course. Each exam will also ask you to draw upon readings, videos, activities, and the observations recorded in your field notes.

Projects/Reports: There will be multiple field projects and exercises this summer. These projects will involve geologic mapping, water/soil quality determinations, geologic hazard assessment, or some other topic of investigation. At the discretion of the instructor, you may be required to work in teams or individually. The format of the final graded product will vary. You may be asked to produce a map, a written report, and/or an oral presentation.

The projects planned for IFP 2024 include those below (all will have equal weight to your grade:

- Jemez Mountain spring/stream geochemistry
- Grand Canyon geologic history and stratigraphy
- Ancient Bristlecone Pine Forest topography maps
- Yosemite fluvial and glacial landscapes
- Dinosaur geologic mapping
- Additions or subtractions to the list above. Subject to change based on field conditions.

Participation: This is a field-based course, and as such you are expected to fully engage in ALL course activities, including keeping up with the readings and films, participating in class discussions, engaging with the information available at field stops, being an active member of the IFP learning community, and actively developing your skills in observation.

****GEOL 4330-L Students:** You are receiving the same course packet as students enrolled in GEOL 2350H and 2360H. Because you are already familiar with introductory geology, you should find much of the material a review – although the particular examples may be new. You are responsible for the 2350H and 2360H material, as well as the additional readings for GEOL 4330 (primarily from supplemental readings in your course packet or handed out by your professors). These additional readings provide an in-depth view of many of the topics covered throughout the summer, but also include entire topics we do not always address in the normal course of the summer. Presenting this additional information to the rest of the class, and leading them in discussions, is a critical portion of your grade for GEOL 4330. You will be required to lead at least two such class presentations/discussions during the program. Because the IFP schedule is busy, packed, and subject to changes beyond our control, please plan ahead and be prepared to give your presentation anytime during the assigned week.

Grades

Your grade will be calculated based on the following values:

Assignment	GEOL 2350H Value	GEOL 2360H Value	GEOL 4330 Value
Exams	30%	30%	30%
Field Notebooks	30%	30%	30%
Special Projects	30%	30%	20%
Participation/Discussion	10%	10%	10%
Class Presentations	0%	0%	10%
TOTAL	100%	100%	100%

Each assignment will be given a grade. Letter grades are assigned the following values for the purposes of calculating the final grade.

A ≥ 95% A- ≥ 90%	Represents work that demonstrates exceptional effort and a thorough mastery of the course material, as well as active and engaged participation. “A” work goes beyond the requirements of assignments to demonstrate a sophisticated understanding of concepts, critical thinking, analytical insight, and creativity in analysis.
B+ ≥ 87% B ≥ 83% B- ≥ 80%	Represents work that demonstrates competence and a sufficient understanding of course material, and regular participation in discussion or activities. “B” work fulfills the requirements of assignments and demonstrates an adequate understanding of key concepts and clear efforts to apply them in analysis.
C+ ≥ 77% C ≥ 73% C- ≥ 70%	Represents work that demonstrates partial understanding of course material, as well as infrequent participation in discussion or activities. “C” work demonstrates a basic understanding of key concepts with minimal application to analysis.
D ≥ 63%	Represents work that demonstrates an inadequate understanding of course material, lack of analysis, and little to no participation in discussion or activities. “D” work may indicate a failure to follow directions or instructor recommendations, or the failure to demonstrate personal effort or improvement. Work may be incomplete or poorly written such that it is not communicated clearly.
F < 63%	Represents work that is unacceptable or missing altogether.

Academic Honesty:

As a University of Georgia student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at: <https://ovpi.uga.edu/academic-honesty/academic-honesty-policy>. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.