

Go West: An Introduction to Field Geology
The Colorado Plateau
GEO 123, Block 2, 2019

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Course description: A largely field-based course centered in the rugged topography of the Colorado Plateau. The fundamentals of geology will be introduced in the classroom and amplified by hands-on learning during a 10-day trip west. Students will learn skills necessary for geological mapping and field-based studies and will gain first-hand knowledge about large-scale tectonic features such as volcanoes and mountains, as well as surficial processes, such as river erosion.

Course meeting times: 9:00–11:00 am M–F; 1:00–3:00 pm as scheduled. We will be in the field from September 30 through October 9th (see itinerary for specific details).

Textbook: No required textbook, but you WILL want to purchase a hand lens (magnifying glass)—available at the College bookstore, ask at the front desk.

Major learning outcomes:

1. Students will build on their understanding of the fundamental processes of geology, particularly through in-field observation and exploration. (*Knowledge*)
2. Students will be able to observe the natural world around them, ask questions, and record appropriate geologic observations/data. (*Inquiry*)
3. Students will be able to synthesize their own observations and/or other available geologic data to create plausible interpretations for the geologic history of a region or landscape. (*Knowledge, Reasoning*)
4. Students will be able to connect the (more abstract) plate tectonic history of the area to the (more concrete) rock history they observe in the field. (*Knowledge, Reasoning*)
5. Students will be able to integrate their knowledge, observations, and theory to produce and present a complete geologic history of a specific part of the Colorado Plateau. (*Communication*)

**This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, inquiry, reasoning, and communication.*

Course information:

Responsibility:

As students at a liberal arts college, you are responsible for your own engagement in the academic conversation. This means being a prepared, active, and respectful participant (in the classroom as well as in the field). This includes reading all the assigned material and doing the work, but more importantly, this means thinking critically, asking questions, and engaging in dialogue with others. During the field portion of the course, responsibility also pertains to being on time, being aware of the situation and the needs of others, not taking undue risks but participating in full, and maintaining a positive and inquisitive outlook. If you do not understand a topic of discussion, an assignment, a grade, or if you have any other questions or concerns, please come and talk with me.

Late Work:

Late assignments will be docked 25% for each day late and at least 10% for lateness on the due date. If you need an extension, please see me **before** the assignment deadline.

Course Accommodations:

Cornell College makes reasonable accommodations for persons with disabilities. Students should notify the Coordinator of Academic Support and Advising (Brooke Paulsen) and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format. For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see <http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml>.

Academic Honesty:

Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is their work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College’s requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Catalogue, under the heading “Academic Honesty.”

Cheating, plagiarism, and other forms of academic dishonesty will not be tolerated. Any student in this course who is involved in academic dishonesty (portraying another person’s work or ideas as their own, submitting the same or similar papers in more than one course without permission from the course instructors, facilitating plagiarism, etc.) will not earn credit for the relevant assignments, may be formally charged with academic dishonesty, and may receive an F in the course.

15-Day Drop:

To drop on the 15th day, you may have no more than 2 *excused* absences; you must have completed all your work, and you must have participated in class. I reserve the right to decide which excuses are valid and to determine whether you have been participating actively in class.

Additional Resources Available to You:

To get the most out of this course, I recommend you use all the resources available to you. This includes me, Science Librarian Amy Gullen, Quantitative Reasoning Consultant Jessica Johannigmeier, Writing Consultant Laura Farmer, and Media Consultant Matt Zhorne. The library has a fairly well-rounded assortment of geological books and journals, and what cannot be found there can be found online through the library’s electronic resources website. Please ask for assistance!

Graded Work:

Much of the work in this class will be the culminating exam and final project. However, as a large portion of the trip is a field portion, I will also take active and appropriate participation into account.

Grading:

10%	participation	15%	field notebook, daily assignments	
15%	field presentation	30%	final project (story map)	30% exam

I use the following general scale but reserve the right to use my discretion and your class record.

A 100–95; A- 94–90; B+ 89–85; B 84–80; B- 79–75; C+ 74–70; C 69–65; C- 64–60; D 59–55; D- 54–50; F <50

*Note that respectful, professional behavior is expected at all times.

Field notebook:

You will each keep a field notebook throughout the trip to record notes, observations, lab exercises, sketches, questions from readings, etc. It is in the pages of this field notebook that you will also make connections and tie together the information that we learn throughout the trip. These are the notes you will use to study for your

exam, so it would behoove you to take excellent notes. **However**, this is NOT a journal or diary. I will collect your field notebooks once or twice during the trip for grades and comments.

Field presentation:

Each of you will give a ~20-minute presentation in the field about a specific topic you will research during the first week of class. You will put together a 1-page (double-sided) fact sheet of visual aids and notes for the class—you are responsible for packing these with you to distribute in the field. You will also choose an article about your topic for the class to read and discuss—you are responsible for photocopying these articles along with a list of reading questions for the whole class.

Final project:

The final project will be to expand upon your field presentation of a particular area/topic from our trip in the format of a storymap. You will present your storymap during the final week of class. (More on this to come!)

Final exam: There will be a final exam at the end of class that will draw particularly from the geology we see and discuss in the field.

Field Trip:

We will be on the road during the second and third weeks of class. Be aware that this is all class time; although you won't be doing geology every second of the day, your participation and behavior for the entire trip will count toward your class grade. Note that we do NOT have any days off scheduled during that time, although there will be longer drives on many days during which you will have time to rest and relax. Our tentative itinerary is below—note that it is most important to be flexible about the itinerary, as it may need to change. Mostly, I expect everyone to have a good attitude and to have fun and make the most out of every situation!

Course itinerary (tentative):

Monday, September 23:	9 am	Course intro; the Colorado Plateau in brief
	1 pm	Library time; set up meetings with Amy Gullen
	8 pm	Presentation topics due on Moodle
Tuesday, September 24:	9 am	Story map intro with Amy Gullen & Matt Zhorne
	1 pm	Review and lab
Wednesday, September 25:	9 am	Field notes lab
	1 pm	Research time
	8 pm	Annotated Bibliography due on Moodle
Thursday, September 26:	9 am	Lab: Maps and Structural Geology
	1 pm	Library time; Class reading article due
	8 pm	Draft of handout & presentation due on Moodle
Friday, September 27:		Scheduled individual meeting times
Monday, September 30:		Allegiant flight 12 CID–LAS departs 1:04 pm; arrives 2:26 pm Shopping, etc. possibly local geology

OVERNIGHT: Home2 Suites by Hilton Las Vegas
City Center, 4940 Dean Martin Dr., Las Vegas, NV 89102; 1-702-891-0015;
https://www.hilton.com/en/hotels/lastaht-home2-suites-las-vegas-city-center/?SEO_id=GMB-HT-LASTAHT

- Tuesday, October 1: Local geology (the Great Unconformity)
4+ hour drive to Flagstaff, AZ (with stops including Hoover Dam)
- OVERNIGHT:** Grand Canyon International Hostel, 19 S. San Francisco Street, Flagstaff, AZ 86001; 1-928-779-9421; info@grandcanyonhostel.com; <https://www.grandcanyonhostel.com/blank>
- Wednesday, October 2: Drive to Grand Canyon South Rim (~2 hour drive) (south entrance)
Visitor's center & Yavapai geology museum; Trail of Time
Possible afternoon hike and drive back to Flagstaff (out east entrance)
- OVERNIGHT:** Grand Canyon International Hostel, 19 S. San Francisco Street, Flagstaff, AZ 86001; 1-928-779-9421; info@grandcanyonhostel.com; <https://www.grandcanyonhostel.com/blank>
- Thursday, October 3: Sunset Crater National Monument (~45 min drive)
~4 hour drive north to Kanab, UT (stops along the way)
- OVERNIGHT:** The Cowboy Bunkhouse Hostel, 210 West 300 North, Kanab, UT 84741; 1-435-644-8224; jmichelsen@thecowboybunkhouse.com; www.thecowboybunkhouse.com
- Friday, October 4: ~1 hour drive to Zion National Park (shuttle from Springdale)
Possible hike in Narrows
~1 hour drive toward Bryce Canyon National park
- OVERNIGHT:** Bryce UpTop Lodge, 1152 Hwy 12, Bryce, UT 84764; 435-834-5227; bryceuptoplodge@gmail.com; <https://bryceuptoplodge.com/>
- Saturday, October 5: Bryce Canyon National Park
~4+ hour drive to Moab, UT
Sunset hike to Delicate Arch?
- OVERNIGHT:** Moab KOA, 3225 South Highway 191, Moab, UT 84532; 800-562-0372; <https://koa.com/campgrounds/moab/>
- Sunday, October 6: Canyonlands National Park: Upheaval Dome
Start drive N to Fruita, CO
- OVERNIGHT:** Balanced Rock Inn, 126 South Coulson, Fruita, CO 81521; 970-858-7333; <http://balancedrockmotel.com/index.html>
- Monday, October 7: ~3 hour drive to Dinosaur National Monument
Visitor's center, quarry hall, and dinosaur discovery hike

OVERNIGHT: Quality Inn, 1684 West Hwy 40, Vernal, UT 84078;
435-789-9550; <https://www.choicehotels.com/utah/vernal/quality-inn-hotels/ut164?source=gyxt>

Tuesday, October 8: ~5 hour drive to Denver, CO

OVERNIGHT: TBA

Wednesday, October 9: United flight 5595 DEN–CID departs 7:52 am, arrives 10:50 am
Trip back to campus with Anna Butz

Thursday, October 10: No class

Friday, October 11: 9 am Meet with Amy Gullen and Matt Zhorne about story maps
Individual meetings

Monday, October 14: 9 am Course wrap-up & review
1 pm No afternoon class: work time

Tuesday, October 15: 9 am **Final exam**

Wednesday, May 16: 9 am **Story map presentations**