GEOLOGY of COLORADO PLATEAU – May 19th – 30th, 2023

GEL 1530 – 2 Credits + $650 Fee

May 17-28, 2022

INSTRUCTOR – JESSICA DAVEY, M.S. jdavey3@msudenver.edu

Phone: 720-394-4270

COURSE OVERVIEW

The Colorado Plateau is an area of spectacular geology and awe-inspiring beauty. Rocks that formed over a span of 1.84 billion years are now exposed in a desert environment. The course consists of 11 days of field lectures within the Colorado Plateau, including visits to Colorado National Monument, Zion National Park, Bryce Canyon, Capitol Reef National Park, as well as stops in Central Utah.

- April 10th - Deposit due $150
- April 27th - 5:00-7:00 pm Kickoff Zoom Meeting*
- May 10th - Remaining trip fees due
- May 13th - 12:00pm - In-Person Logistics/Gear Check*
- May 19-30th - On the Trip!
- Jun 9th - 12:00pm - Student Poster Presentations and Debrief

*both pre-trip meetings are MANDATORY

COURSE OBJECTIVES

- Learn basic principles of geology
- Learn the Geology of the Colorado Plateau region
- Identify characteristic formations and depositional characteristics of the Colorado Plateau region (the field area)
- Identify geomorphic and geologic history of the field area
- Identify economic products associated with the field area
- Develop problem-solving skills by collecting and interpreting data about the Earth
- Improve technical presentation skills and work in diverse teams

REQUIRED COURSE MATERIALS

- Hintze, Lehi F., 2005. Utah's Spectacular Geology and how it came to be, Brigham Young University Department of Geology. (~$30 Amazon)
- Morris, Thomas H., Ritter, Scott M., and Laycock, Dallin P., Geology Unfolded, An Illustration to the Geology of Utah's National Parks. (~$4 Amazon)
- Hard Cover Geology Field Notebook (4 ¾" x 7 ½") (~$5 Amazon)
- Camera (cell phone camera is sufficient)
- Optional (rock hammer and sample bags/labels, hand lens, colored pencils)

COURSE REQUIREMENTS AND POINTS

- **PARTICIPATION (100 Points – 10 Days x 10 Points/Day)**

  Each day is a new beginning to participate in the trip. We start early and will often gather in the evenings for campfire discussions. Participation in these events demonstrates a learning attitude. When a new geology student participates, they ask questions, connect ideas, listen to others, read background materials, and seize opportunities to grow and develop in the science. An immersive opportunity like this trip is rare and sets a tone for professional growth. Bring and share your mindset about Geology each day and show an interest in what is happening around you.

- **GEOLOGIC TIME SCALE QUIZ (25 Points)**

  This is intended to help you understand geology in the context of deep time. Students will need to fill in the blanks on an empty time scale (see example chart below). You must learn and correctly spell the names of the eras, periods, and epochs, as well as selected ages.

- **STUDENT TALKING POINTS (50 Points)**

  Each student will be assigned a "talking point" to include various formations and geologic processes that will be viewed throughout the trip. Students should prepare a well-researched presentation which may include visual aids and will be given on the day according to the trip itinerary. You will become the local "expert" on the formation or geologic process you are assigned. A slide in your Field Trip Report should be dedicated specifically to your talking point.

- **FIELD TRIP REPORT (75 Points)**

  Students will create a final 10-12 page (digital slideshow preferred) report of the trip. This report should be a chronological review of all stops and discussions. Students should collect a visitor's brochure at every possible stop. Original field photos (both large and small-scale features) should be included on each page of the report with labels of key features. A few photos of "people in action" making observations and measurements may also be included. The major focus of the text on any page must include technical discussion and new terms, sketches or figures, and group questions that were part of the learning experience. The first page is a title page, including the report title, student name, and an original background photo. The report's last page should reflect on the total experience, memorable moments, and what you learned, liked, disliked, and recommendations for a better trip.

- **OPTIONAL EXTRA CREDIT: GEOPUZZLE (10 points)**

  This is an interesting topic or observation or measurement in the field that needs additional attention. Perhaps complicated faulting or unconformable contact(s), strange sediment structures, or area of recreation or use that needs additional geologic attention. This must be specifically flagged in your field notebook as the "Geopuzzle" page. You must have a conversation with the trip leader(s) sometime during the camp about your geopuzzle. Document possible ways to understand it better; what type of data collection could be done, possible analogs, and design lab experiments. How can the scientific method be applied to approach this geopuzzle?

GRADES

Participation: 10 days x 10 pts daily	100 Points
Geologic Time Scale Quiz	25 Points
Talking Point	50 Points
Final Report	75 Points
Optional Extra Credit: Geopuzzle	10 Points
Total Possible Points	200 Points (+10 extra credit available)

94-100%	= A	80-82.9%	= B-	65-69.9%	= D+
90-93.9%	= A-	77-79.9%	= C+	59-64.9%	= D
87-89.9%	= B+	73-76.9%	= C	55-58.9%	= D-
83-86.9%	= B	70-72.9%	= C-	below 55%	= F

FIELD TRIP

Because we will be camping for 10 nights, preparing meals, and hiking a lot during our field lectures, every minute that you spend thinking and planning for this trip will be greatly rewarded in terms of comfort and ease of mind. It is your responsibility to be properly outfitted for this trip, including camping equipment and proper clothing. Camping equipment can be obtained from Campus Recreation at a very reasonable cost.

Your non-refundable $650 fees will cover your transportation, a couple of group meals, camping fees, and entrance fees.

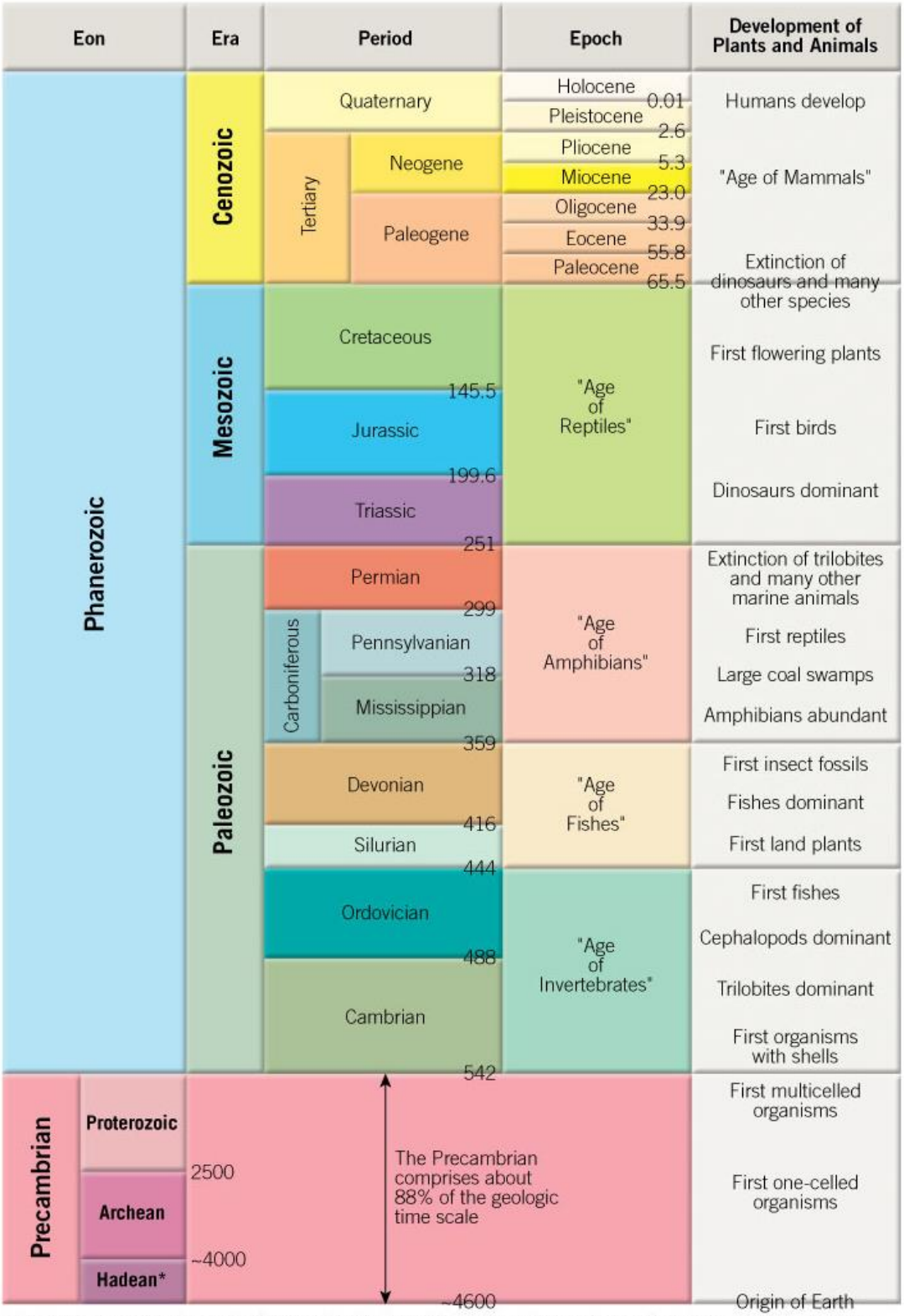
Enough water while hiking is critical….you will be in a desert! Do not waste water! Strenuous hiking is involved. We will give you a suggested checklist of supplies (separate from the syllabus).

Do not litter! In fact, if you see any trash around our campsites, please pick it up and put it in a trash can or trash bag. Always leave a campsite in better shape than when you arrived. Last but not least, be sure to bring a camera!

FIELD-TRIP WAIVER

In order to participate in this course, students must sign a field trip liability waiver. All students are under the professional responsibility concerning the consumption of alcohol, as well as impairing drugs and medications. To keep all involved safe, a “no drinking” policy will be enforced for ALL students. Smoking will only be permitted in designated areas. Because of eminent fire dangers in the many areas visited, absolutely NO smoking will be allowed during field hikes or outside designated areas. This includes but is not limited to throwing cigarette butts out of car windows. The instructors have the right to terminate any student found in violation of these responsibilities, and such actions will terminate him or her from continuing the trip. The fees submitted will be non-refundable in such cases.

Time Scale Quiz - Figure from Lutgens and Tarbuck p. 498.



* Hadean is the informal name for the span that begins at Earth's formation and ends with Earth's earliest-known rocks.