Spring 2024 | GEOL 0092 | Geology of National Parks

Professor: Ryan Kerrigan
Office: Krebs 227A **Office Hours:** Tues. 1-3 or by appointment
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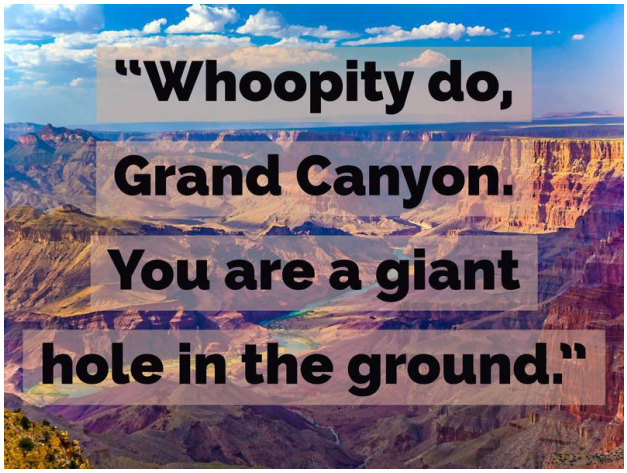
Class time: Monday, Wednesday, and Friday, 11:00 AM-11:50 AM **Class Room:** Krebs 220

Welcome to Geology of National Parks!

The basic principles of physical geology are explored within the context of observed geology at United States National Parks. The basic science of various geologic concepts is introduced and specific National Parks are explored as examples of those processes. Erosional processes are examined by viewing the geology at Grand Canyon, Canyonlands, Arches, and others. The differences in volcanoes and volcanic activity are investigated by looking the processes at Yellowstone, Mt. St. Helens, Hawaiian Volcanoes Park, and others. A wide range of geologic topics and National Parks are covered over the semester. Each section of the course is designed to fully incorporate the natural examples of geology within our wonderful National Park system.



Goals and Outcomes
By the end of this course, students will have:
- An understanding of basic geologic principles.
- An ability to observe and identify various geologic phenomena in nature.
- An understanding of the different geologic phenomena present within the National Parks.
- A greater appreciation for our National Parks.

COURSE RESOURCES AND RULES
Text (required): Parks and Plates, 2005, Lillie, R. J., W.W. Norton and Company. (ISBN-10: 0393924076; ISBN-13: 978-0393924077), p. 298. You can find this online for ~$90, however, rental is ~$20. Additionally, I have asked the library to have a copy on reserve. You will complete assignments using it and I will refer to its contents in lecture frequently.

Web-material: I will try to get most all of our material on Canvas. If I am slow to post material, just shoot me an email me to remind me.

Electronics: Electronics are PROHIBITED in lectures; no computers, ipads, phones, music players, beepers, pagers, watches, etc. Please turn them off and put them away. Please do not make me have to remind you.

Clean-up: Please don't make a mess, but if you choose to make a mess, please clean up after yourself.

Safety: Use your brain, do not do anything that would endanger yourself or your classmates.

Academic Integrity: Although there will be opportunities for group work in this course, all students are responsible for understanding the material and should indicate with whom they collaborated on any assignment. Group work does not mean that one person does all the work and everyone else puts their name on it…this is considered cheating. Students **should not:** claim other's ideas as their own, turn in other's work as their own, copy sources without proper citation (plagiarism), allow others to take their work or ideas, or pass off past projects as original work. If you have questions about academic honesty, see the instructor or refer to the document "Academic Integrity at the University of Pittsburgh at Johnstown." (https://www.johnstown.pitt.edu/sites/default/files/landing-images/upj-academics-integrityguidelines.pdf). Anyone found to be in violation of the Pitt-Johnstown standards for academic integrity will fail the course.

Student Accommodations: If you have requesting accommodations, you are encouraged to contact both the instructor and the Office of Health and Wellness (G-10 Student Union Building, 814-269-7119) to schedule an appointment as early as possible in the term. The Office of Health and Wellness will verify your disability and determine reasonable accommodations for this course.

Diversity and Inclusion: Our classroom will be one of acceptance and inclusion. Any form of discrimination, bullying, etc. will not be tolerated. Please review the university's statement of Equity and Inclusion, if you are unfamiliar: https://www.johnstown.pitt.edu/about/office-president/equity-and-inclusion

Late Work: Any work not received by the due date and time will have points deducted, except when pre-excused by the instructor (which will require documentation). Up to 10% of the total possible points will be deducted each day late (this includes weekends and holidays). No work will be accepted after the last day of classes.

Outside Resources: Perhaps there are questions that I cannot answer, or issues you feel you cannot discuss with me, UPJ has outlets these issues. Kara Bernard, the Natural Sciences division administrative assistant, is a wealth of knowledge about random stuff. If you have a problem me or a problem you don't feel comfortable talking to me about, please see: Steve Stern, Chair of the Natural Science Division; he is my boss.

EVALUATION

1. Problem Sets:
The problem sets will be a series of multiple-choice question from each chapter of your book. These will be very difficult to complete without the book. Problem sets will heavily reinforce topics discussed and covered in class so attendance to class will be imperative. If for some reason you are unable to attend class please contact your classmates for the missed material. The problem sets will be worth 30% of your total grade.

2. Exams:
There will be three unit exams during the semester (including the final). The tentative dates of these exams are shown on the Course Schedule found below. The exams will be generally 60% multiple choice and 40% of short answer/drawings/labeling/calculations/etc. The exams will comprise 50% of your total grade. The first two exams will be 15% each of your total grade. The final exam will be held **Friday, April 26, 2024 from 10:30AM to 12:30PM in Krebs 220** and will be a cumulative exam worth 20% of your total grade.

Exams will emphasize material presented in lecture; however, students will also be tested on material contained in the readings. Exams will not just test your factual knowledge of the material; students will also be expected to *apply* your knowledge and understanding of the course material. In this regard, it is of prime importance to understand geologic concepts, more than just "facts." Some memorization will be necessary, but is considered of secondary importance. Exams are closed-book. There are no make-up exams. If you know you will be missing an exam, see me and we may be able to arrange to have you take the exam early.

3. Research Paper and Presentation:
Students will be asked to complete a semester-long research project that will culminate in the presentation of the independent investigation. Students will be asked to report on the geology of a Pennsylvania State Park. At the beginning of the semester, you will be given supplemental material related to this project including a listing of Pennsylvania State Parks. The State Parks will be presented as one per student (i.e., multiple students cannot report on the same State Park). A separate sheet will be distributed discussing expectations, timelines, formats, and potential topics.

4. Field Trips:
There will be one field trip associated with this course. I am still finalizing the details of the trip but it is expected that all students will attend. There will be a short assignment connected with the field trip. I will discuss everyone's schedule the first week of class and determine if people have conflicts. It is your responsibility to alert me of any conflicts within the first month of class. I need to be made aware of any conflicts you have within the first month of class and a make-up project will be assigned. If you do not make me aware of any conflicts it will be assumed you can attend and you will forfeit any chance at a make-up assignment.

ASSESSMENT

- 30% Problem Sets
- 50% Exams (first two exams will be 15% each and the cumulative final will be 20%)
- 15% Research Paper and Presentation
- 5% Field Trips
- Standard grade cut-off apply (100-96.6 =A+, 96.6-93.3=A, 93.3-90=A-, etc)

TENTATIVE CLASS SCHEDULE

Course Schedule			
Week	**Monday**	**Wednesday**	**Friday**
1	January 8, 2024 *Introduction to* *National Parks*	January 10, 2024 *Earth's Structure* pgs. 6-10	January 2, 2024 *Earth's Structure* pgs. 10-21
2	January 15, 2024 **MLK Day** **NO CLASS**	January 17, 2024 *Plate Tectonics* pgs. 10-14 **Chapt I Questions Due**	January 19, 2024 *Plate Boundaries* pgs. 14-17
3	January 22, 2024 *IntraPlate Tectonics* pgs. 17-20	January 24, 2024 *Minerals & Rocks* pgs. 30-34 **Chapt II Questions Due**	January 26, 2024 *Rocks & Geologic Time* pgs. 23-24 **Research Paper Topics Due**
4	January 29, 2024 Geologic Time pgs. 24-25	January 31, 2024 *Relative vs. Absolute Dating* pgs. 24-26 **Chapt III Questions Due**	February 2, 2024 *Geologic Maps & Deformation*
5	February 5, 2024 *Rheology - Faults and Folds* pgs. 42-45	February 7, 2024 *Ig. Rocks - Magma generation* **Chapt IV Questions Due**	February 9, 2024 *Volcanism* pgs. 34-37
6	February 12, 2024 *Volcanoes* pgs. 40-42	February 14, 2024 *Review*	February 16, 2024 **EXAM I**
7	February 19, 2024 *Death Valley* pgs. 54-66	February 21, 2024 *Death Valley* **Chapt V Questions Due**	February 23, 2024 *Death Valley & Grand Teton* **Research Paper Citations Due**
8	February 26, 2024 *Great Basin & Isle Royale* pgs. 67-69	February 28, 2024 *National Seashores* pgs. 74-80 **Chapt VIa Questions Due**	March 1, 2024 *Grand Canyon*

Course Schedule			
Week	**Monday**	**Wednesday**	**Friday**
9	March 4, 2024 Olympic pgs. 97-105	March 6, 2024 *Pacific NW Parks* pgs. 105-119 **Chapt VIb Questions Due**	March 8, 2024 **NO CLASS**
10	March 11, 2024 **NO CLASS** **SPRING BREAK**	March 13, 2024 **NO CLASS** **SPRING BREAK**	March 15, 2024 **NO CLASS** **SPRING BREAK**
11	March 18, 2024 Seirra Nevada Parks	March 20, 2024 *Review*	March 22, 2024 **EXAM II**
12	March 25, 2024 *Shenandoah* pgs. 129-145	March 27, 2024 *Great Smokey Mts* pgs. 129-145 **Chapt VIII Questions Due**	March 29, 2024 *Acadia* pgs. 129-145 **Research Paper Outline Due**
13	April 1, 2024 *Hawaii* pgs. 173-190	April 3, 2024 *Yellowstone* *pgs. 193-205* **Chapt IX Questions Due**	April 5, 2024 *Yellowstone*
14	April 8, 2024 *Parks & Glaciers* pgs. 219-221	April 10, 2024 *Cave Parks* *pgs. 221-228* **Chapt X Questions Due**	April 12, 2024 *Southwest Parks* pgs. 82-87; 228-233
15	April 15, 2024 **Review**	April 17, 2024 **Research Paper Presentations**	April 19, 2024 **Research Paper Presentations**
16	**Friday** **April 26, 2024** **10:30-12:30** **FINAL EXAM**		