

GEOL 304: Intermediate Geology of National Parks

Welcome!

Welcome to GEOL 304! Geology of National Parks was the first geology course I took in college. I fell in love with geology while taking it because it changed the way I traveled and viewed the National Park system. It is an honor to share with you the beauty, science, and wonder of our national parks during this class, and I hope you share what you learn with your friends and family in the years to come.

Faculty Information and How to Contact Me:

Faculty: Dr. Alison Sloat

Office (Student) Hours: If you have questions, I invite you to stop by my office (MPE-A 133) during **office hours, a time I set aside specifically for your questions and concerns:** Mondays (M), Tuesdays (Tu), Wednesdays (W), Thursdays (Th), and Fridays (F) from 9:30 am – 10:30 am. You are also welcome to contact me outside of class and office hours—email me at alison.sloat@unlv.edu, or call me at 702-895-1535.

Office Location: MPE-A 133 (down the hall from the College of Sciences Advising Center)

Email: alison.sloat@unlv.edu

Phone: 702-895-1535

Course Description:

This course examines the features, processes, and geologic history of North America's National Parks, as well as the future of the parks. 3 Credits. Prerequisite: GEOL 101.

Learning Outcomes:

Upon successful completion of this course, each student will be able to:

1. Contrast the geologic processes that occur at different types of plate boundaries and describe how these processes produce the unique rock assemblages found in each setting.
2. Establish timing of geologic events that have shaped a park landscape, as depicted in a geologic map or cross-section, by applying relative and absolute dating principles.
3. Identify the tectonic events that caused the transgressions and regressions and related stratigraphic sequences in the parks.
4. Infer the likely tectonic setting of a national park from a description of its major geologic features and explain how such features are produced by the processes that operate at a specific type of plate boundary or hotspot.
5. Analyze the development of a park's landforms in terms of the interactions between tectonic and volcanic processes, which are driven by Earth's internal heat, and erosional processes caused by the movements of water, wind, and ice.
6. Outline the major geologic events that have shaped the parks and list parks where features related to each of these events can be observed.
7. Analyze whether an observation, experimental result, or proposed explanation is consistent with a scientific hypothesis for a natural phenomenon and effectively communicate this analysis to others.

What You Need for This Class:

There is no textbook for this class. Instead, we will be reading scientific peer-reviewed articles that are available for free from the UNLV Library. Direct links to the articles are available in WebCampus.

This class includes an optional 3-day overnight camping field trip to Bryce Canyon National Park in Utah, so you will need the following on days we are out in the field:

1. Notebook (8.5" x 11" in size; an expensive Rite in the Rain notebook is unnecessary)
2. Pencils, pens (red, green, blue, purple pens/colored pencils optional, but recommended)
3. Backpack to carry your food, water, notebook and other items during the day while hiking
4. Closed-toe shoes (no flip-flops allowed in the field). Hiking boots are not necessary, but shoes with tread/good traction are preferred (trail/running shoes work well)
5. Hat
6. Water
7. Sunscreen
8. Sunglasses
9. Jacket (see note below about temperatures)
10. We will be camping for two nights at Kodachrome Basin State Park, a beautiful and unique park east of Bryce Canyon, located outside of Henrieville, UT. Daytime high temperatures could be in the 90°F range, and overnight lows will likely be in the 50°F range. The campground has flush toilets, running water, showers, and picnic tables. We will share tents, cooking equipment, and food. **Do not buy a tent, stove, and kitchen set up for this trip.** We have enough to go around! You **will** need a sleeping bag and pillow. If you do not have a sleeping bag and do not want to buy one, the UNLV Outdoor Adventures rents them for \$16 (<https://www.unlv.edu/campusrec/outdoor-adventures/equipment-rentals/camping>).

How to Succeed in This Class:

Everyone can succeed in this class if you do the following:

1. Arrive to class or to the field on time each day.
2. When out in the field, listen to and follow directions. You are an ambassador for UNLV. Trespassing, climbing of fences, destruction of property and/or natural surroundings will not be tolerated and are grounds for immediate dismissal from the course.
3. Listen, take notes, and participate in class so that you can do well on your exams and assignments. There is no textbook for this course, so please take notes in class and use the PowerPoint slides and readings to help you study for exams. Because of the condensed time frame of this class, I recommend studying/making flashcards/reviewing notes every day after class.
4. When out in the field, work with a partner. It's safer, you'll learn more, and it's fun.
5. Do not use your phone/tablet/laptop in class.
6. Read my comments and edits on your exams and exercises.
7. Ask questions if you do not understand something or if you need clarification.
8. Check your RebelMail/WebCampus at least once per day for announcements/field schedule changes.

Grading Policy:

<u>Grade</u>	<u>Semester Total Points</u>	<u>Grade</u>	<u>Semester Total Points</u>
A	463-500	C	363-382
A-	448-462	C-	348-362
B+	443-447	D+	333-347
B	413-442	D	313-332
B-	398-412	D-	298-312
C+	383-397	F	297 and lower

Assignments:

100 Points	Exam 1
100 Points	Exam 2
150 Points	Final (Cumulative)
100 Points	Poster Project and Presentation
50 Points	Readings and Exercises

Note: *No makeup assignments will be allowed without an authorized university excuse.*

Research Poster Project and Presentation (100 points)

You will complete a research analysis poster project and brief presentation on a geology-related problem (e.g., climate change, water quality, natural hazard, etc.) facing a particular national park. Research topics will be selected during the first week of the course. You will be responsible for using library resources to collect background information on the issue, analyzing the problem, deciding on recommendations for dealing with the problem, and defending your viewpoint by explaining why you recommend these actions rather than others. This project will require you to locate reliable scientific sources, properly use and cite the sources, summarize the information in your own words, and apply what you have learned previously in class while thinking critically about the problem. You will create a scientific poster that you will present during a poster session during the fifth week of class.

Readings and Exercises (50 points)

Throughout the class, readings and exercises will be assigned to reinforce topics discussed in class (UULO 1 through 5). It is important that you attend class each day to complete and discuss the assignments. There will be no makeup assignments.

WebCampus:

This course will utilize WebCampus for communicating, course handouts, and posting of grades. To access WebCampus, go to <https://www.it.unlv.edu/webcampus>. On the [WebCampus](#) page, click Log on to WebCampus; the log in page has instructions regarding your username and password.

Attendance

Because of the interactive nature of this course, your attendance and participation are required. The course includes lectures, discussions and activities, an optional field trip, and other class projects. It is impossible for you to complete the work if you do not come to class. Each student is responsible for attending every class session. Prior to each class, please complete all assignments and readings.

Lecture, Field, and Assignment Schedule – subject to change at the instructor’s discretion

Course Schedule

Week	Date	Lecture Topic	Reading Assignment
Week 1	6/6/2022	Lecture 1: Yosemite National Park	
	6/7/2022	Yosemite Papers Discussion Lecture 2: Sequoia Kings Canyon National Park	Putnam et al., 2015; Breck et al., 2009; or Hopkins et al., 2014
	6/8/2022	Lecture 3: Rocky Mountain National Park and paper discussion	Battaglin et al., 2018 or Brahney et al., 2020
	6/9/2022	Lecture 4: Great Basin National Park Poster Instructions	
	6/10/2022	Lecture 5: Death Valley National Park	Norris et al., 2014
Week 2	6/13/2022	Lecture 6: Denali National Park and Review Poster Project Topic Due	
	6/14/2022	Exam #1 (Lectures 1-5)	
	6/15/2022	Lecture 7: Grand Canyon National Park	
	6/16/2022	Grand Canyon National Park activity	
	6/17/2022	Lecture 8: Zion National Park	Beever et al., 2016
Week 3	6/20/2022	Lecture 9: Bryce Canyon National Park Bibliography Due	
	6/21/2022	Lecture 10: Arches National Park	
	6/22/2022	Bryce Canyon Field Trip – Leave UNLV 8 a.m.	
	6/23/2022	Bryce Canyon Field Trip	
	6/24/2022	Leave Kodachrome - Return to UNLV by mid-afternoon	
Week 4	6/27/2022	Lecture 11: Mount Rainier and Crater Lake National Park and Review	
	6/28/2022	Exam #2 (Lectures 6-10)	
	6/29/2022	Lecture 12: Mount St. Helens National Monument	Draft Poster Due
	6/30/2022	Lecture 13: Yellowstone National Park	
	7/1/2022	Lecture 14: Hawaii Volcanoes National Park	
Week 5	7/4/2022	Fourth of July Holiday - No Class	
	7/5/2022	Poster Session	Poster due
	7/6/2022	Poster Session	Poster due
	7/7/2022	Poster Session	Poster due
	7/8/2022	Final Exam (Cumulative)	

University Policies

Public Health Directives

Students must follow all active UNLV public health directives while enrolled in this class. UNLV public health directives are found at [Health Requirements for Returning to Campus](https://www.unlv.edu/coronavirus/health-requirements), <https://www.unlv.edu/coronavirus/health-requirements>. Students who do not comply with these directives may be asked to leave the classroom. Refusal to follow the guidelines may result in further disciplinary action according to the [UNLV Student Conduct Code](https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf), https://www.unlv.edu/sites/default/files/page_files/27/StudentConduct-Code.pdf, including being administratively withdrawn from the course.

Academic Misconduct

Academic integrity is a legitimate concern for every member of the University community. We all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility, and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy, and are encouraged to always take the ethical path whenever faced with choices. Students enrolling at UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's educational mission. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another person, from the Internet or any other source without proper citation of the source(s). See the [Student Conduct Code](https://www.unlv.edu/studentconduct/student-conduct), <https://www.unlv.edu/studentconduct/student-conduct>.

Auditing a Course

Auditing a course allows a student to continue attending the lectures and/or laboratories and discussion sessions associated with the course, but the student will not earn a grade for any component of the course. Students who audit a course receive the same educational experience as students taking the course for a grade, but will be excused from exams, assessments, and other evaluative measures that serve the primary purpose of assigning a grade.

Classroom Conduct

Students have a responsibility to conduct themselves in class and in the libraries in ways that do not interfere with the rights of other students to learn, or of instructors to teach. Use of devices such as cellular phones and pagers, or other potentially disruptive activities are only permitted with the prior explicit consent of the instructor. Students are specifically prohibited to record classes without instructor authorization, including online/remote classes (either audio only, or video and audio). The instructor may rescind permission at any time during the class. If a student does not comply with established requirements or obstructs the functioning of the class, the instructor may initiate an administrative withdrawal of the student from the course.

Since the COVID-19 pandemic forced some instruction to be delivered remotely starting in Spring 2020, numerous students have asked instructors to record their synchronous classes, so that they can access them at their convenience. Instructors who agree to record their classes (audio only, or video and audio) should inform students in advance. Recorded lectures may not be broadly released to anyone, but made available exclusively to those students enrolled in the class during the particular academic term. Recorded lectures must be stored securely, and are subject to the Nevada System of Higher Education's Records Retention Policy, meaning that the

recordings can only be deleted 120 days after the end of class (i.e., after grades are posted). Once this requirement is met, the recordings should be deleted. Class recordings are protected from disclosure, as they are deemed part of an educational record under the Family Educational Rights and Privacy Act (FERPA).

Copyright

The University requires all members of the University Community to familiarize themselves with, and to follow copyright and fair use requirements. You are individually and solely responsible for violations of copyright and fair use laws. The University will neither protect nor defend you, nor assume any responsibility for student or employee violations of fair use laws. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional [copyright policy information](#) is available at <https://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC)

The [UNLV Disability Resource Center](#) (Student Services Complex, SSC-A, Room 143, <https://www.unlv.edu/drc>, telephone 702-895-0866) provides resources for students with disabilities. Students who believe that they may need academic accommodations due to a permanent disability, temporary or permanent medical need, or academic support due to pregnancy are encouraged to contact the DRC as early as possible in the academic term. A Disabilities Specialist will discuss what options may be available to you. Students who are already registered with the DRC should request their accommodations online each semester, and make an appointment to discuss their accommodations with their instructors.

Final Examinations

The University requires that final exams given at the end of a course occur on the date and at the time specified in the Final Exam schedule. The Final Exam schedule is typically available at the start of the semester, and the classroom locations are available approximately one month before the end of the semester. See the [Final Exam Schedule](#), <https://www.unlv.edu/registrar/calendars>.

Identity Verification in Online Courses

All UNLV students must use their Campus-issued ACE ID and password to log in to WebCampus-Canvas.

UNLV students enrolled in online or hybrid courses are expected to read and adhere to the [Student Academic Misconduct Policy](#), <https://www.unlv.edu/studentconduct/misconduct/policy>, which states that “acting or attempting to act as a substitute for another, or using or attempting to use a substitute, in any academic evaluation or assignment” is a form of academic misconduct. Intentionally sharing ACE login credentials with another person may be considered an attempt to use a substitute, and could result in investigation and sanctions, as outlined in the Student Academic Misconduct Policy.

UNLV students enrolled in online courses are also expected to read and adhere to the [Acceptable Use of Computing and Information Technology Resources Policy](#), <https://www.it.unlv.edu/policies/acceptable-use-computing-and-information-technology-resources-policy>, which prohibits sharing university accounts with other persons without authorization.

To the greatest extent possible, all graded assignments and assessments in UNLV online courses should be hosted in WebCampus-Canvas or another UNLV-managed platform that requires ACE login credentials for access.

Incomplete Grades

The grade of “I” (Incomplete) may be granted when a student has satisfactorily completed three-fourths of course work for that semester/session, but cannot complete the last part of the course for reason(s) beyond the student’s control and acceptable to the instructor, and the instructor believes that the student can finish the course without repeating it. For undergraduate courses, the incomplete work must be made up before the end of the following regular semester. Graduate students receiving “I” grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the period indicated, a grade of “F” will be recorded, and the student’s GPA will be adjusted accordingly. Students who are fulfilling an Incomplete grade do not register for the course, but make individual arrangements with the instructor who assigned the “I” grade.

Library Resources

Librarians are available to consult with students on research needs, including developing research topics, finding information, and evaluating sources. To make an appointment with a subject expert for this class, please visit the [Libraries’ Research Consultation](https://guides.library.unlv.edu/appointments/librarian) website, <https://guides.library.unlv.edu/appointments/librarian>. You can also [ask the library staff](https://ask.library.unlv.edu/) questions via chat and text message at <https://ask.library.unlv.edu/>.

Missed Classwork

Any student missing class, quizzes, examinations, or any other class or laboratory work because of observance of religious holidays will be given an opportunity during that semester to make up the missed work. The make-up opportunity will apply to the religious holiday absence only. It is the responsibility of the student to notify the instructor within the first 14 calendar days of the course for Fall and Spring courses (except for modular courses), or within the first 7 calendar days of the course for Summer and modular courses, of their intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit the Missed Classwork policy, under Registration Policies, on the [Academic Policies](https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=) webpage, <https://catalog.unlv.edu/content.php?catoid=32&navoid=8271&hl=>.

In accordance with the policy approved by the Faculty Senate regarding missed class time and assignments, students who represent UNLV in any official extracurricular activity will also have the opportunity to make up assignments, provided that the student submits official written notification to the instructor no less than one week prior to the missed class(es).

The spirit and intent of the policy for missed classwork is to offer fair and equitable assessment opportunities to all students, including those representing the University in extracurricular activities. Instructors should consider, for example, that in courses which offer a “Drop one” option for the lowest assignment, quiz, or exam, assigning the student a grade of zero for an

excused absence for extracurricular activity is both contrary to the intent of the Faculty Senate's policy, and an infringement on the student's right to complete all work for the course.

This policy will not apply in the event that completing the assignment or administering the examination at an alternate time would impose an undue hardship on the instructor or the University that could be reasonably avoided. There should be a good faith effort by both the instructor and the student to agree to a reasonable resolution. When disagreements regarding this policy arise, decisions can be appealed to the Department Chair/School Director, College/School Dean, and/or the Faculty Senate Academic Standards Committee.

For purposes of definition, extracurricular activities may include, but are not limited to academic recruitment activities, competitive intercollegiate athletics, fine arts activities, liberal arts competitions, science and engineering competitions, and any other event or activity sanctioned by a College/School Dean, and/or by the Executive Vice President and Provost.

Rebelmail

Rebelmail is UNLV's official email system for students and by University policy, instructors and staff should only send emails to students' Rebelmail accounts. Rebelmail is one of the primary ways in which students receive official University communications, information about deadlines, major Campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the University. Emailing within WebCampus-Canvas is also acceptable. **Emailing within WebCampus is acceptable. When emailing the instructor, please include a professional greeting, your name, the class section and/or day/time of your class, a polite note addressing the subject of your email, and a courteous valediction.**

Tutoring and Coaching

The Academic Success Center (ASC), at the Claude I. Howard Building, provides tutoring, academic success coaching, and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, please visit the [ASC website](https://www.unlv.edu/asc), <https://www.unlv.edu/asc>, or call 702-895-3177. The ASC is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of SSC A, Room 254. Drop-in tutoring is located on the second floor of the Lied Library, and on the second floor of the College of Engineering building (TBE A 207).

UNLV Writing Center

One-on-one or small group assistance with writing is available free of charge to UNLV students at the [Writing Center](https://writingcenter.unlv.edu/), <https://writingcenter.unlv.edu/>, located in the Central Desert Complex, Building 3, Room 301 (CDC 3-301). Walk-in consultations are sometimes available, but students with appointments receive priority assistance. Students may make appointments in person or by calling the Center, telephone 702-895-3908. Students are requested to bring to their appointments their Rebel ID Card, a copy of the instructions for their assignment, and two copies of any writing they have completed on their assignment.

Diversity Statement

As an institution of higher learning, UNLV represents a rich diversity of human beings among its faculty, staff, and students, and is committed to aspiring to maintain a Campus environment that values that diversity. Accordingly, the University supports understanding and appreciation of all members of its community, regardless of race, sex, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, gender, gender identity, marital status, pregnancy, genetic information, veteran status, or political affiliation. Please see [University Statements and Compliance](https://www.unlv.edu/about/statements-compliance), <https://www.unlv.edu/about/statements-compliance>.

A successful learning experience requires mutual respect and trust between the students and the instructor. Accordingly, the instructor asks that students be willing to listen to one another's points of view, acknowledging that there may be disagreements, keep discussion and comments on topic, and use first person, positive language when expressing their perspectives.