Fall 2025

PTYS 590: Planetary Geology Field Studies

Instructor Information

Instructor: Dr. Jack Holt (Dr. Joe Schools assisting)
Instructor's Office Location: Kuiper 432
Instructor's Telephone Number: 512-299-5316
Instructor's E-mail address: jwholt@arizona.edu
Office Hours: By Appointment

General Information and Schedule

Meeting room: Kuiper Space Sciences Building, Room 330.
First meeting: Friday, Sept 5, 2025, 330-5pm.
Subsequent meetings: TBD, generally Fridays in the 3-5pm time slot
Field trip: Oct 2-6,
Post-trip debrief: TBD

Course Description

This course provides students with field-based opportunities to examine the products of fundamental geologic processes and learn how these landforms and processes relate to the surfaces of other planets. In addition to making first-hand observations, each student will contribute to the Field Guide and give a short presentation to the group while in the field. This course will involve camping with minimal or no facilities, and occasional moderate hiking. If there are any reservations or concerns regarding such hikes, students should contract the Instructor. Students need to supply their own camping gear. Students may enroll in the course up to ten times for credit. Field trips are led by a Planetary Sciences faculty member once per semester and are assessed using SPF grading system. This semester (Fall 2025), the field trip will span five days and will be led by Dr. Jack Holt and Dr. Joe Schools. We will explore the geology of the southern Owens Valley, California with a variety of planetary-related features.

Course Prerequisites or Co-requisites

The course is intended for students in the Department of Planetary Sciences (PTYS) Graduate Program. Students outside of PTYS must obtain consent from the Instructor prior to registering for the course. The course itself has no prerequisites. However, students will be required to undertake moderate hiking to access outcrops for field-based observations. Participation in the field trip is required to obtain a passing grade of S or P.

Course Format and Teaching Methods

Course information will be made available through D2L with planning sessions held prior to the field trip starting on Oct 2, 2025. During the first class, we will discuss topics. Student research topics will also be posted and students are expected to complete a research report prior to leaving for the field and present the report during the field trip. Students are also expected to take field notes to document their observations of relevant geological outcrops. Field notebooks will be graded.

Course Objectives

The objective of the course is for students to develop skills related to geological observation and description. Additionally, students will link their understanding of terrestrial geology with the remote sensing of planetary surfaces to develop an improved understanding of geological, geophysical, and geochemical processes relevant to the study of planetary bodies.

Expected Learning Outcomes

Students will be able to develop research plans and test their own hypotheses related to geology and paleo-environments. Students will be able to create geological descriptions using field-based techniques and advanced methods of measurements. Students will be able to develop connections between fundamental geological surface processes operating on Earth—such as sedimentology, tectonics, and processes of weathering and erosion—and analogous processes operating on other planetary bodies to understand their similarities and differences. Students will also be able to develop their communication skills by presenting scientific information to their peers. These outcomes provide a context for the geological landforms and processes studies in other parts of the graduate program in Planetary Sciences, providing students with framework to understand and interpret planetary surfaces in remote sensing data.

Required Texts and Materials

There are no required texts, but students are expected to conduct independent readings to research their field trip report. Readings should include peer-reviewed sources of information with appropriate references. Field books, hand lenses, hand-held global positioning systems (GPS) and other educational materials required for the field will be provided. All other materials (e.g., camping equipment) will not be provided, and are the student's responsibility to obtain.

Assessments

Research Report: Students are expected to prepare a 3–5-page report related to their choice of topic prior to the field trip. A list of suggested topics will be posted on D2L prior to the first planning meeting. Students are also encouraged to propose their own topic (with instructor approval). Completed reports are due September 25, one week before the field trip departure.

Report Presentation: The field report will be presented by in the field by each student are expected to be 15 minutes in length. Each student should also contribute expertise on their topic at other times during the trip as appropriate.

Alternative Report/Presentation Formats: If a student faces challenges in meeting course requirements, please contact the instructor for an alternative assignment.

Field Notebooks: Field notebooks will be collected and evaluated at the end of the field trip.

Policy on revision and resubmission of assignments: Late assignments will not be accepted.

Final Examination or Project

This course does not have a final examination, but does include a final project, due Sept 25.

Grading Scale and Policies

Grading for this course will be: S, P, F (Superior, Pass, Fail) based on:
Field Trip Report 40%
Field Trip Presentation 40%
Field Notebook 20%
Grades are assigned as follows: S ≥ 90%, 90% > P ≥ 50%, and F < 50%.

Note: All assignments will be graded by the Instructor; students must participate in the field trip to obtain a passing grade; and late work will generally not be accepted. See "Absence and Class Participation Policy" Section for more details.

Requests for incomplete (I) or withdrawal (W) grates must follow University policies:
http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete
http://catalog.arizona.edu/policy/grades-and-grading-system#withdrawal

Safety on Campus and in the Classroom

For a list of emergency procedures for all types of incidents, please visit the website of the Critical Incident Response Team (CIRT): https://cirt.arizona.edu/case-emergency/overview

Also watch the video available at
https://arizona.sabacloud.com/Saba/Web_spf/NA7P1PRD161/common/learningeventdetail/crtfy000000000003560

Nondiscrimination and Anti-harassment Policy

The University of Arizona is committed to creating and maintaining an environment free of discrimination. In support of this commitment, the University prohibits discrimination, including harassment and retaliation, based on a protected classification, including race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information. For more information, including how to report a concern, please see:
http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

University Policies

All university policies related to a syllabus are available at: https://catalog.arizona.edu/syllabus-policies.

Artificial Intelligence

In this course you are welcome to use generative artificial intelligence (AI)/large language model (LLM) tools (e.g., ChatGPT, Dall-e, Bard, Perplexity). However, use of such tools must be disclosed in your report. Failure to report AI/LLM constitutes plagiarism. Also, be aware that many AI companies collect information; do not enter confidential information as part of a prompt. LLMs may generate false information and tools may reflect misconceptions and biases of the data they were trained on and the human-written prompts used to steer them. You are responsible for checking facts, finding reliable sources for, and making a careful, critical examination of any work that you submit. Nonetheless, use of AI/LLM tools aligns with the course learning goals in that it enables students to learn how to work with cutting edge methods and learn how to best describe geological features. Experimenting with AI/LLM tools also helps students to be aware of their value and limitations, which helps to demystify these methods.

Absence and Class Participation Policy

Assignments are due at the beginning of class on (or before) the due date. If an assignment is due, you are responsible for turning it in, even if you are absent from class. Late work will generally not be accepted without preapproval from the instructor. Absences for university-approved activities for which you have in advance a note of dean's approval will be excused, or other arrangements will be made. For more information, please see the following resources:

The UA's policy concerning Class Attendance, Participation, and Administrative Drops is available at: http://catalog.arizona.edu/policy/class-attendance-participation-and-administrative-drop

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, see: http://policy.arizona.edu/human-resources/religious-accommodation-policy

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored, see: https://deanofstudents.arizona.edu/absences

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Absences may affect a student's final course grade. If you anticipate being absent, are unexpectedly absent, or are unable to participate in class online activities, please contact me as soon as possible. To request a disability-related accommodation to this attendance policy, please contact the Disability Resource Center at (520) 621-3268 or drc-info@email.arizona.edu. If you are experiencing unexpected barriers to your success in your courses, the Dean of Students Office is a central support resource for all students and may be helpful. The Dean of Students Office is located in the Robert L. Nugent Building, room 100, or call 520-621-7057.

COVID-19 or Other Illness

If you feel sick, or may have been in contact with someone who is infectious, stay home. Except for seeking medical care, avoid contact with others and do not travel. Notify your instructor(s) if you will be missing a course meeting or an assignment deadline. If you must miss the equivalent of more than one week of class, you should contact the Dean of Students Office to share documentation about the challenges you are facing.

Land Acknowledgement

We respectfully acknowledge the University of Arizona is on the land and territories of Indigenous peoples. Today, Arizona is home to 22 federally-recognized tribes, with Tucson being home to the O'odham and the Yaqui. Committed to diversity and inclusion, the University strives to build sustainable relationships with sovereign Native Nations and Indigenous communities through education offerings, partnerships, and community service.

Subject to Change Notice

Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor of this course.

Graduate Student Resources

For more resources see the University of Arizona's Basic Needs Resources page: http://basicneeds.arizona.edu/index.html