

MARS

PTYS-ASTR-GEOS 442/542

Zoom virtual meetings or Kuiper Building 308 or 312

Meeting times: MW 2-3:15 PM, but also hold Fridays 2-3:15 PM as a backup day.

This is a FLEX IN PERSON course, with a mix of on-line and in-person classes. The semester will begin on-line and stay there until the COVID-19 situation makes UA and enough students (and the professor) comfortable with in-person classes. The large lecture hall Kuiper 308 is available for social distancing if in-person attendance is too large for 312.

Description of Course

In-depth study of the planet Mars, including geology, geophysics, atmospheric science, climate change, the search for life, and the history and future of Mars exploration. There will be guest lectures from professors and research scientists with expertise in various aspects of Mars. There will be discussion of recent results and scientific controversies.

Course Prerequisites or Co-requisites

The course is intended for upper division (442) and graduate (542) science majors or minors. Participants must have a strong undergraduate background in the physical sciences including several introductory courses in math, physics, geology, and either planetary science or astronomy.

Instructor and Contact Information

Professor Alfred McEwen

204 Sonett Building

(520) 270-0701

mcewen@lpl.arizona.edu

Office Hours: After class, or email or text for appointment

You can email or text questions anytime.

Web information, http://pirlwww.lpl.arizona.edu/~mcewen/PTYS_442_542_2021

Course Format and Teaching Methods

Lecture, seminar, small-group activities, in-class discussion

Course Objectives

The student who successfully completes this course should have a good basic understanding of all aspects of Mars and how it compares with Earth and other planets. Students should acquire a new understanding and appreciation for exploration and scientific research and sharpen their skills in critical thinking.

Expected Learning Outcomes

You will be able to distinguish fact from fiction about Mars.

You will demonstrate your knowledge about the significance of current research in the field by writing research reports.

You will be able to prepare and present effective, informative, and persuasive public speeches.

Graduate students will also demonstrate original research or critical thinking.

Absence and Class Participation Policy

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, <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.

Course Communications

Online communication will be conducted via UA e-mail addresses, D2L, and Zoom meetings.

Required or Recommended Texts or Readings

See http://pirlwww.lpl.arizona.edu/~mcewen/PTYS_442_542_2021/papers

Assignments and Examinations: Schedule/Due Dates

Homework will be assigned about every two weeks in class. In general, this homework will be due two weeks from the date on which it is assigned. Some of these assignments may be based on analysis of spacecraft data and will require students to utilize computational resources such as the software JMars. We will devote a lecture to demonstrate this and other software. Late homework receives half credit and homework submitted a week or more after the due date receives no credit. If you are unable to complete a homework assignment on time (and have a good reason) you must discuss this with us *before* the due date to avoid losing credit.

All students will participate in targeting and analyzing your own HiRISE image of Mars. We will need to quickly get the candidate HiRISE targets defined for acquisition in March. Each student will present interpretations of their image later in the course after the data have been returned to Earth.

Graduate students will also be expected to lead a 30-minute class presentation and discussion about a Mars topic or current controversy of their choice (with instructor's concurrence).

Final Examination or Project

There will be no final or mid-term exam in this course.

A final course project (which may be an extension of the HiRISE image analysis) will be required of all students on some subject relevant to the content of the course. Students are encouraged to interact with the instructor early in the semester to choose a topic for their project. A 10-15 minute oral presentation

and 5-page written report on this project will be due at the end of the semester. For undergraduates (442), this project may be a (thorough) literature review of a chosen topic. For graduate students (542), it should also contain original research or critical analysis.

Grading Scale and Policies

Final grades are determined from:

Homeworks	30%
HiRISE image report	20%
Class Participation (442/542) & 30-minute presentation (542)	15%
Final project - Oral	15%
Final project - written	20%

Homework grades will be assigned according to the following scale.	90-100%	A
	80-89%	B
	70-79%	C
	60-69%	D
	50-59%	E

Incomplete (I) or Withdrawal (W):

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at <http://catalog.arizona.edu/policy/grades-and-grading-system#incomplete> and <http://catalog.arizona.edu/policy/grades-and-grading-system#Withdrawal> respectively.

Scheduled Topics/Activities

See: http://pirlwww.lpl.arizona.edu/~mcewen/PTYS_442_542_2021/schedule

Zoom Meetings

All COS courses must adhere to FERPA protections when using Zoom recordings.

https://privacy.arizona.edu/sites/default/files/ferpa%20guidance_04.16.2020_final.pdf

For lecture recordings, students must access content in D2L only. Students may not modify content or re-use content for any purpose other than personal educational reasons. All recordings are subject to government and university regulation. Therefore, students accessing unauthorized recordings or using them in a manner inconsistent with UArizona values and educational policies are subject to suspension or civil action. An example of unauthorized use is accessing a course recording on an external site (e.g., YouTube). Another example of unauthorized use is posting course videos to external sites.

The instructor will make recordings of Zoom classes so that they are available to students who can't participate in real time. This is specifically to accommodate students who may be unwell or quarantining for some period during the semester, or who are temporarily at home as caretakers for others, and international students whose travel may be disrupted. Students may hide their name identity in Zoom, but let the instructor know your pseudonym. Alternately, instructors can set their Zoom recordings to automatically hide names with the following instructions.

These recordings are part of the students' educational record and should NOT be shared with anyone outside of the class.

In-Person Class Meetings (if and when this begins)

Face coverings are required in our classroom: Per UArizona's **Administrative Directive**, face coverings that cover the nose, mouth, and chin are required to be worn in all learning spaces at the University of Arizona (e.g., in classrooms, laboratories and studios). Any student who violates this directive will be asked to immediately leave the learning space, and will be allowed to return only when they are wearing a face covering. Subsequent episodes of noncompliance will result in a Student Code of Conduct complaint being filed with the Dean of Students Office, which may result in sanctions being applied. The student will not be able to return to the learning space until the matter is resolved.

The [Disability Resource Center](#) is available to explore [face coverings and accessibility considerations](#) if you believe that your disability or medical condition precludes you from utilizing any face covering or mask option. DRC will explore the range of potential options as well as remote course offerings. Should DRC determine an accommodation to this directive is reasonable, DRC will communicate this accommodation with your instructor.

Physical distancing is required in our classroom: During our in-person class meetings, we will respect CDC guidelines, including restricted seating to increase physical distancing.

Classroom attendance: 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 instructors if you will be missing an in person or online course. [Campus Health](#) is testing for COVID-19. Please call (520) 621-9202 before you visit in person. Visit the [UArizona COVID-19](#) page for regular updates.

Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

Threatening Behavior Policy

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Accessibility and Accommodations

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu/>) to establish reasonable accommodations.

Code of Academic Integrity

Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity>.

The University Libraries have some excellent tips for avoiding plagiarism, available at <http://new.library.arizona.edu/research/citing/plagiarism>.

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>

Additional Resources for Students

UA Academic policies and procedures are available at <http://catalog.arizona.edu/policies>

Campus Health

<http://www.health.arizona.edu/>

Campus Health provides quality medical and mental health care services through virtual and in-person care.

Phone: 520-621-9202

Counseling and Psych Services (CAPS)

<https://health.arizona.edu/counseling-psych-services>

CAPS provides mental health care, including short-term counseling services.

Phone: 520-621-3334

The Dean of Students Office's Student Assistance Program

<http://deanofstudents.arizona.edu/student-assistance/students/student-assistance>

Student Assistance helps students manage crises, life traumas, and other barriers that impede success. The staff addresses the needs of students who experience issues related to social adjustment, academic challenges, psychological health, physical health, victimization, and relationship issues, through a variety of interventions, referrals, and follow up services.

Email: DOS-deanofstudents@email.arizona.edu

Phone: 520-621-7057

Survivor Advocacy Program

<https://survivoradvocacy.arizona.edu/>

The Survivor Advocacy Program provides confidential support and advocacy services to student survivors of sexual and gender-based violence. The Program can also advise students about relevant non-UA resources available within the local community for support.

Email: survivoradvocacy@email.arizona.edu

Phone: 520-621-5767

Preferred Gender Pronoun

This course affirms people of all gender expressions and gender identities. If you prefer to be called a different name than what is on the class roster, please let me know. Feel free to correct instructors on your preferred gender pronoun. If you have any questions or concerns, please do not hesitate to contact me directly in class or via email or text. If you wish to change your preferred name or pronoun in the UAccess system, please use the following guidelines:

Preferred name: University of Arizona students may choose to identify themselves within the University community using a preferred first name that differs from their official/legal name. A student's preferred name will appear instead of the person's official/legal first name in select University-related systems and documents, provided that the name is not being used for the purpose of misrepresentation. Students are able to update their preferred names in UAccess.

Pronouns: Students may designate pronouns they use to identify themselves. Instructors and staff are encouraged to use pronouns for people that they use for themselves as a sign of respect and inclusion. Students are able to update and edit their pronouns in UAccess.

More information on updating your preferred name and pronouns is available on the Office of the Registrar site at <https://www.registrar.arizona.edu/>.

Subject to Change Statement

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