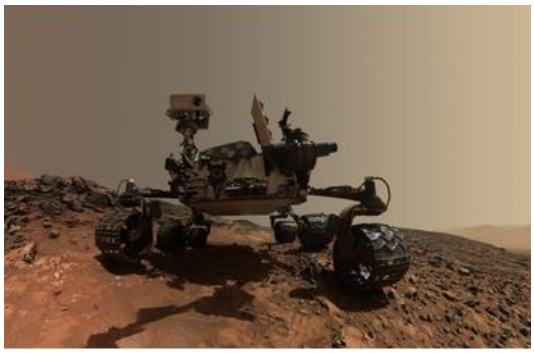
G346U Exploring Mars

Online, Spring, 2023

CRN 67753 (4 credits)



Location:
Canvas, Portland State University (all content):
https://canvas.pdx.edu

Course web page (copy of syllabus, with announcements as needed):
https://web.pdx.edu/G346/index.html

Instructor: Alex Ruzicka (contact through Canvas)

Teaching Assistant: George Anim (contact through Canvas)

Course Description: This on-line course focuses on the ongoing exploration of Mars. Topics include a historical perspective, impact cratering and what it can tell us, minerals and rocks on Mars as studied remotely and from the surface and as meteorites, volcanoes and tectonic features and how these relate to the interior of the planet, sedimentary materials, channels, crater lakes and shorelines, ice and high-latitude landforms, and the search for life. Although this is a science course that emphasizes research discoveries and exploration, each week features a "personal touch" about the people who have contributed to discoveries, the exploration effort, or who have some connection to the planet. These people come from a variety of backgrounds and have a diversity of talents, and their stories will be provided along with the science and exploration.

Pre-requisites: None, although introductory geology (G201 or G202) is recommended. However, **everything you will need to know will be provided, so this course is open to all.**

Text: None. Content will be delivered through Canvas and through online resources. Unless content is specifically noted as "optional", you will be responsible for it. This means text, figures, figure captions, and videos—anything provided in the Canvas modules. Important vocabulary is highlighted in bold red text, and other important conclusions are given in bold black. Pay special attention to these.

Weekly schedule: This course is organized around course weeks, which are 8 calendar days starting at 12:01 AM Monday of each week and ending at 11:59 PM on Monday the following week. For each week, there is a module that will contain reading and video content. There will be a weekly quiz and a weekly discussion posting and reply for Course Weeks 1-9; with Week 10 reserved for time to do a wrap-up project. There will be no Final Exam.

Quizzes: There will be weekly quizzes in Canvas that will be made available one week at a time, starting at the beginning of each Course Week. Each quiz will consist of 10 multiple choice questions. Students will have 45 minutes to complete each quiz, and two attempts, with the best score of the two attempts used for the weekly quiz score. For the course, the lowest weekly quiz score will be dropped. This means that only the best 8 of 9 quizzes will be used for your grade. It also means that **quizzes cannot be and will not be "reopened" after the end of the Course Week. If you have a medical or family emergency that will cause you to miss more than one Weekly Quiz, you should contact the instructor.** Questions will be pulled randomly from a question bank. This means that you may get different questions in each attempt. But you should budget enough time to do the two attempts and this can improve your score. Two types of multiple choice questions have been prepared. Some ("choose one answer" type) have only one best answer, and these will be easier questions. Others ("choose all that apply" type) can have one or

more correct answers, and these will be more challenging and will require a more complete understanding. To get this type of question completely correct, students will have to choose all the correct answers and no incorrect answers; partial credit will be given for answers that are more correct than incorrect according to an algorithm in Canvas. To do well on the quizzes, you will need to read and watch all the content that is provided and spend some time carefully thinking about the questions. However, these are essentially "open book" questions, and if you have spent time with the material, you could do well.

Discussion Postings: There will be weekly discussion postings in Canvas, together with two replies you make to the postings of others. Except for Week 1, which will have Introductions, other postings will consist of finding images of certain kinds and providing certain specified information about these images. Spacecraft exploration of Mars has resulted in hundreds of thousands of images that can be found on the web, and this assignment will let you make your own discoveries and share these with others in the class. For each week, a new discussion assignment will be made available at 12:01 AM on Monday, with an initial posting due by 11:59 PM on Friday. Replies to postings will be due by the end of the Course Week at 11:59 PM the following Monday. These postings and replies will be graded by the TA. For the course, the lowest score for the weekly posting/reply will be dropped. This means that only the best 8 of 9 postings/replies will be used for your grade. Like the weekly quizzes, it also means that **postings will be limited to the course week in which they are assigned, and if you have a medical or family emergency that will cause you to miss more than one Weekly Discussion, you should contact the instructor.** To do well on the weekly postings, you will have to spend some time making postings, gathering online materials as needed. So long as you make enough time for it, and follow the directions, this can be a fun assignment (more fun than the quizzes!) and you should do well on it**. Please take the time to look at the sample postings provided by your instructor.**

Wrap-up assignment: Students will do a wrap-up assignment in Week 10 that will serve as a review of the course. This will be used by the instructor as an assessment of how well students learned material and how the course can be improved. It will take the place of a Final.

Other policies: (a) If you feel you have a disability and need an accommodation, contact the Disability Resource Center (drc@pdx.edu, 503-725-4150). (b) Each student is responsible for all the content covered online and in the weekly meetings. (c) A culture of professionalism and mutual respect is expected. Any incident of discrimination or discriminatory harassment, including sexual harassment, can be reported to the Office of Equity and Compliance, or the Office of the Dean of Student Life. For resources, see http://www.pdx.edu/sexual-assault/get-help . The instructor is obligated to report incidents of discrimination, sexual harassment, sexual assault, dating/domestic violence and stalking to the University Title IX Coordinator. (d) Students are expected to follow PSU policies for academic integrity, which means not engaging in academic misconduct; see https://www.pdx.edu/dos/academic-misconduct. Examples of misconduct include cheating on an exam, copying someone else's work, submitting for credit work done by someone else, or knowingly and intentionally assisting another student in any of the above. (e) *This syllabus is a written contract between you and your instructor. Please read it carefully and contact your instructor if you need further clarification. If you decide to continue in this course, it means that you have thoroughly read the syllabus and accept all requirements as stated.*

Grades and expectations: Grading is done on a straight scale although curves will be used at my discretion. **Curves will probably be used for the total quiz score, so don't panic if your quiz grades aren't what you want them to be, as they will depend on how you measure up relative to others in the class.**

Students sometimes consider online courses to be easy. And there is the "U" designation, which has some expectations. Certainly, this course will be flexible in that learning can occur anywhere at any time. And there isn't a term project or Final, so you won't be hammered at the end. But don't

be fooled, it won't be trivial. The course covers a lot of ground, with both geology and astronomy aspects. The expectation I would recommend for this course is as follows: treat it like an in-person 4 credit science course that will require a similar amount of effort to complete. This means you can expect to spend maybe 4 hours each week on engaging with (reading, watching) the content, depending on your reading speed. On top of this, you need to budget enough time to take the weekly quizzes, and to do the Discussion posting "homework". **If you allocate sufficient time and do your best, you can and should succeed in this course and have some fun with it! And like everything else, what you get out will depend on what you put into it. A lot of effort went into this course (designers M. Hutson and A. Ruzicka), and we hope you'll learn a lot.**

Grades will be assigned based on scores as follows: 95% or above = A, 90-94.99% = A-, 87-89.99% = B+, 83-86.99% = B, 80-82.99% = B-, 77-79.99% = C+, 73-76.99% = C, 70-72.99% = C-, 67-69.99% = D+, 63-66.99% = D, 60-62.99% = D-, less than 60% = F. I generally do not give "I" grades. This class can be taken Pass/No Pass. If you elect to change your grading option, please inform me by course email. Letter grades will correspond to the standards given in the PSU course catalog.

G346 grades will be determined from performances on:

Quizzes	40%
Weekly Discussions & Replies	40%
Wrap-up Assignment	20%

TENTATIVE COURSE OUTLINE (see course website and Canvas for changes)

	Content	**Online (see Canvas for specifics)**	**Personal Touch**
Week 1	Module 1: Our changing view of Mars	Watch/read Week 1 module, make a discussion posting and two replies	Octavia Butler
Week 2	Module 2: Impact cratering and what it tells us	Watch/read Week 2 module, make a discussion posting and two replies	A Tale of Two Couples: Jay Melosh & Ann Vickery, Gene & Carolyn Shoemaker
Week 3	Module 3: Minerals and rocks on Mars	Watch/read Week 3 module, make a discussion posting and two replies	Who names those rocks? The story of Máaz.
Week 4	Module 4: Volcanoes, tectonics, and the interior of Mars	Watch/read Week 4 module, make a discussion posting and two replies	Baerbel Lucchitta
Week 5	Module 5: Sedimentary materials and aeolian processes	Watch/read Week 5 module, make a discussion posting and two replies	Arthur C. Clarke and the Sands of Mars
Week 6	Module 6: Channels	Watch/read Week 6 module, make a discussion posting and two replies	Vic Baker and J. Harlen Bretz
Week 7	Module 7: Crater lakes and shorelines	Watch/read Week 7 module, make a discussion posting and two replies	Behind the spacecraft Perseverance
Week 8	Module 8: Ice and high-latitude landforms	Watch/read Week 8 module, make a discussion posting and two replies	James Head
Week 9	Module 9: Searching for life on Mars	Watch/read Week 9 module, make a discussion posting and two replies	Carl Sagan

Week 10	Module 10: Wrap-up assignment	Answer questions about the course online	
Finals	None. Get ready for the summer!	Finish wrap-up assignment	