

GEOL 796: Planetary Science Seminar (3 credits)

Instructor: Arya Udry

Office: LFG 204 **Phone:** (702) 895-1239 **e-mail:** arya.udry@unlv.edu

(email is the best way to contact me, don't rely on the phone)

Prerequisites: GEOL 427/627 (Igneous and metamorphic petrology)

Office hours: Tuesdays from 3:30-5:30 pm

Required Textbook: Cosmochemistry from McSween and Huss (Cambridge press)

Course Description: This course introduces geologic and cosmochemical processes throughout our solar system. In this seminar, we will discuss how sample analyses, spacecraft missions, and theoretical modeling have contributed to our modern understanding of the solar system. In addition, we will compare geologic processes on extraterrestrial bodies to those that occur on Earth.

Learning Objectives: At the end of this course, students should be able to:

- Describe the cosmochemical and geologic processes, which formed major rocky and icy bodies, and that have been - and currently are – active in the solar system.
- Understand how and why other planetary bodies differ from Earth and what they can tell us about the Earth
- Read and discuss planetary scientific papers
- Understand the differences and connections between geological and planetary sciences
- Present research through a final presentation of a NASA-format proposal

Grading policy: Final grades will be assigned according to the following schedule. The instructor may also elect to curve the **final** grades in the students' favor.

<u>Grade</u>	<u>Semester Average</u>	<u>Grade</u>	<u>Semester Average</u>
A	Over 93	C	Between 73 and 77
A-	Between 90 and 93	C-	Between 70 and 73
B+	Between 87 and 90	D+	Between 67 and 70
B	Between 83 and 87	D	Between 63 and 67
B-	Between 80 and 83	D-	Between 60 and 63
C+	Between 77 and 80	F	Less than 60

Grades: Grades are based on a combination of weekly summaries, in-class participation, proposals, and final oral presentations

Weekly summaries	30%
NASA proposal	30%
Proposal presentation	10%
Class participation	30%

Students will write every week a summary of assigned papers that should be turned in at the beginning of each class. Students will also write a NASA-format proposal about their planetary topic of choice with approval of the instructor. This proposal should be

a maximum of 10 pages single-spaced, not including references, budget, and work plan.

Course Schedule

<u>Date</u>	<u>Topic</u>
01.17	Introduction
01.24	Cosmochemistry and Solar System Formation
01.31	Chondrites and undifferentiated asteroids
02.17	Differentiated asteroids (Vesta)
02.14	Moon I – Early history of the Moon
02.21	Moon II – Geology of the Moon, lunar exploration
02.28	Mercury – MESSENGER data and meteorite analogs
03.07	Mars I – Martian crust and mantle evolution
03.14	Mars II – Martian crust and mantle evolution
03.21	<i>Lunar and Planetary Science Conference</i>
03.28	Mars III – Felsic rocks on Mars
04.04	The Mars 2020 Mission
04.11	<i>Spring Break</i>
04.18	Non-traditional isotopes applied to Cosmochemistry
04.25	Water in the solar system and astrobiology
05.02	Proposal presentations

Changes to syllabus: The lecture schedule is tentative; adjustments to the schedule of topics and readings may be made in accordance with the rate of progress in the classroom. Students will be provided with an updated syllabus if significant changes are necessary.

Attendance: On time attendance to class lectures is required. We will make accommodations for reasonable absences (illness for example) but may require documentation. Please notify the instructor as soon as possible that you will be missing a class. If you miss a class, you are responsible to find out what material was covered and if any schedule changes were announced.

Late summaries: Late summaries (not given at the beginning of the class) will have their grades divided by two until the Thursday of that same week. It will then become a 0.

Official Extracurricular Activity: All students who represent UNLV at any official extracurricular activity have the opportunity to make up an assignment. However, you must provide official written notification to me at least 1 week prior to the missed class(es).

Learning environment: The classroom is intended to be a place of learning. As such, and as specified in the UNLV undergraduate Catalog, no pagers, cell phones, or other potentially disruptive devices are allowed in either lecture or lab. Student usage of laptop, recording equipment, or similar devices is only allowed with explicit permission of the instructor, and is restricted to taking notes for this course. Disruptive behavior including, but not limited to those described above, chatting, sleeping, watching video, playing games, or texting may result in an administrative withdrawal from the course.

Administrative Drops/Classroom conduct: You are required to be familiar with university policies and procedures in the current UNLV undergraduate Catalog. Importantly, we follow the policies on Administrative Drops/Classroom Conduct as stated in the most recent UNLV Undergraduate Catalog. Any student that does not comply with these requirements, and conduct themselves in a manner that is disruptive and interferes with the right of other students to learn, or of the instructor to teach will be administratively dropped from the course.

Academic Misconduct: Academic integrity is a legitimate concern for every member of the campus community; 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 when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV's function as an educational institution. An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <http://studentconduct.unlv.edu/misconduct/policy.html>.

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 employee or student 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 information can be found at: <http://www.unlv.edu/provost/copyright>.

Disability Resource Center (DRC): The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the

accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor before or after class to discuss your accommodation needs.

Religious Holidays Policy – Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor no later than the end of the first two weeks of classes, January 30, 2015, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

Incomplete Grades - The grade of I – Incomplete – can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

Tutoring – The Academic Success Center (ASC) provides tutoring and academic assistance for all UNLV students taking UNLV courses. Students are encouraged to stop by the ASC to learn more about subjects offered, tutoring times and other academic resources. The ASC is located across from the Student Services Complex (SSC). Students may learn more about tutoring services by calling 702-895-3177 or visiting the tutoring web site at: <http://academicsuccess.unlv.edu/tutoring/>.

UNLV Writing Center – One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>

Rebelmail – By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always @unlv.nevada.edu. Emailing within WebCampus is acceptable.