GEOL 3342.500 Fall 2023

Planetary Geology

Syllabus

Instructor: Wesley Turner

Room 307 Miller Science Building

(936) 468-1049

turnerwl@sfasu.edu

Virtual Office hours: By Student Appointment over Zoom; email through MySFA or D2L to schedule

Physical Office hours: Tuesday 9 AM – 12 PM, Wednesday and Thursday 1 PM – 2 PM; or by appointment

Department: Earth Sciences and Geologic Resources

Course Description: Three semester hour course covering topics concerning application of geoscience to the astronomical realm. The course material involves solar system and planetary formation, geosphere-atmosphere-hydrosphere interactions, planetary materials, asteroids, meteorites, comets, stellar evolution, and remote sensing. Planetary Geology contains extensive written content that includes the same information students in a face-to-face lecture course receive, requiring students to engage the online modules for at least three hours per week. Primary source readings are woven into the content to support key concepts and provide perspective on geoscience concepts. In addition, students are required to complete quizzes/exams over the course content, participate in weekly discussion forums, and complete multiple writing assignments that evaluate their comprehension of planetary materials and processes. Successful completion of all elements for the course requires at least six hours of additional student work each week. Prerequisites: GEOL 1301 or GOL 1303.

Program Learning Outcomes:

1. Demonstrate knowledge of the fundamental core geologic concepts (Mineralogy, Petrology, Structural Geology, Stratigraphy, Geophysics and Geochemistry). (Concepts)
2. Execute geologic procedures and methods accurately, appropriately and efficiently. (Skills)
3. Apply principles of logic and reasoning to develop and analyze geologic problems. (Logical - Reasoning)
4. Demonstrate competence in using various geologic tools, including technology, to formulate, represent, and solve problems. (Critical thinking - Problem Solving)
5. Demonstrate proficiency in communicating geologic information in an appropriate form to the expected audience. (Communication)

Student Learning Outcomes:
1. Demonstrate understanding of planetary formation and structure of the solar system;
2. Demonstrate ability to analyze and interpret information from remote sensing techniques;
3. Demonstrate understanding of geologic concepts applied to extraterrestrial bodies;
4. Demonstrate competency in critical thinking through effective scientific written reports and oral presentations

**General Education Core Curriculum Objectives/Outcomes:**

The Texas Higher Education Coordinating Board has identified six core learning objectives: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives. By enrolling in GOL 101 Fundamentals of Earth Science, you are also enrolling in a Core Curriculum Course that seeks to develop the following core objectives established by the THECB:

- **Critical Thinking Skills** – creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- **Communication Skills** – effective development, interpretation and expression of ideas through written, oral and visual communication.
- **Empirical and Quantitative Skills** – manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- **Teamwork** – the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

**Text and Materials:**

No textbook is required for this course. Students are required readings from a variety of published books and current articles in professional journals as PDFs for download. Reading material from space agency websites, covering past and future exploration missions are also used. Recommended Textbook: *Planetary Geoscience* by McSween, Moersch, et al. ISBN: 1107145384

**Course Requirements:**

**Quizzes:** Online quizzes covering the module material will be made available through the open period for each module. Quizzes are automatically graded based on correctness.

**Discussion Activities:** Students will be asked to write short discussions concerning topics covered in the modules. Students cannot view other posts until they post their discussion. Discussions should professional and courteous towards other students. Discussion activities are graded based on content and meeting criteria of the individual discussion.

**Assignments:** Assignments will include exercises and worksheets concerning module material and a research paper with presentation. Assignments will be graded based on criteria of individual assignment.

**Exams:** Exams at the end of each unit will gauge understanding of the material covered in that unit’s modules. Exams are automatically graded based on correctness.
Grading Policy

Your final grade will be determined by summing the weighted averages of your grades in each of the categories below. Letter grades will be assigned as follows: A (90.0–100), B (80.0–89.9), C (70.0–79.9), D (60.0–69.9), F (< 60.0)

Quizzes: 6 Quizzes total of equal weight; 10% of course grade

Discussion Activities: 7 Activities total, 6 of equal weight, 1 of double weight; 15% of course grade

Assignments: 8 Assignments total, 2 Mapping Assignments worth 3% of the total assignment grade, Research Project Topic worth 2%, Annotated Bibliography worth 5%, Main Body Draft worth 10%, Abstract worth 2%, Final Paper worth 50%, and Presentation worth 25%; 15% of course grade

Exams: 3 Exams worth equal weight; 60% of course grade

Tentative Course Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Module</th>
<th>Assignments (all times are CST)</th>
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<tbody>
<tr>
<td></td>
<td>Unit 1: Geologic Processes and the Solar System</td>
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<td></td>
<td>Week 1 8/28 - 9/1</td>
<td>Read syllabus, semester calendar</td>
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<td></td>
<td>Module 1: Getting Started</td>
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<td>Complete Discussion Activity: Student Introduction by 9/1 at 11:59 PM</td>
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<td>Week 2 9/4 - 9/8</td>
<td>Read week's content</td>
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<td>Module 2: Geologic Processes Pt. 1</td>
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<td></td>
<td>Complete Discussion Activity: Core Comparison by 9/8 at 11:59 PM</td>
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<td>Complete Quiz #1 by 9/8 at 11:59 PM</td>
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<tr>
<td>Week 3</td>
<td>9/11 - 9/15</td>
<td>Module 3: Geologic Processes Pt. 2</td>
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<td>Week 4</td>
<td>9/18 - 9/22</td>
<td>Module 4: Water on Earth and Elsewhere</td>
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<td>Week 5</td>
<td>9/25 - 9/29</td>
<td>Module 5: Exploration</td>
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<tr>
<td>Week 6</td>
<td>10/2 - 10/6</td>
<td>Unit 1 Review</td>
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**Unit 2: Toolkit of the Planetary Geologist**

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<tr>
<th>Week 7</th>
<th>10/9 - 10/13</th>
<th>Module 1: Introduction to Spectroscopy</th>
<th>Read week's content</th>
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<td><strong>Complete Quiz #4 by 10/13 at 11:59 PM</strong></td>
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<td><strong>Complete Discussion Activity: The Right Tool for the Job by 10/13 at 11:59 PM</strong></td>
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<td>Week 8</td>
<td>10/16 - 10/20</td>
<td>Module 2: Planetary Stratigraphy</td>
<td>Read week's content</td>
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<td><strong>Complete Discussion Activity: Defining Map Units by 10/20 at 11:59 PM</strong></td>
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<td><strong>Annotated Bibliography is due by 10/20 at 11:59 PM</strong></td>
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<td>Week 9</td>
<td>10/23 - 10/27</td>
<td>Module 3: Surface Mapping Exercise</td>
<td>Read week's content</td>
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<td><strong>Complete Exercise: Surface Mapping Exercises by 10/27 at 11:59 PM</strong></td>
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<td>Week 10</td>
<td>10/30 - 11/3</td>
<td>Unit 2 Review</td>
<td>Read week's content</td>
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<td><strong>Complete Exam 2 for Unit 2 by 11/3 at 11:59 PM</strong></td>
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**Unit 3: Planetary Materials, Evolution, and Processes**
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<tr>
<th>Week 11</th>
<th>Module 1: Solar System Raw Materials</th>
<th>Read week's content</th>
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<tr>
<td>11/6 - 11/10</td>
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<tr>
<td><strong>Complete Quiz #5 by 11/10 at 11:59 PM</strong></td>
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<td><strong>Research Paper Main Body Draft Due 11/10 at 11:59 PM</strong></td>
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<td>Week 12</td>
<td>Module 2: Assembling Planets and Planetesimals</td>
<td>Read week's content</td>
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<td>11/13 - 11/17</td>
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<td><strong>Complete Quiz #6 by 11/17 at 11:59 PM</strong></td>
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<td>Week 14</td>
<td>Thanksgiving</td>
<td>Enjoy the holiday!</td>
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<td>11/20 - 11/24</td>
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<td>Week 13</td>
<td>Module 3: Impact Cratering as a Geologic Process</td>
<td>Read week's content</td>
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<td>11/27 - 12/1</td>
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<td><strong>Complete Discussion Activity: Crater Comparison by 12/1 at 11:59 PM</strong></td>
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<td><strong>Research Paper Abstract Due by 12/1 at 11:59 PM</strong></td>
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<td>Week 15</td>
<td>Unit 3 Review</td>
<td>Complete Exam 3 for Unit 3 by 12/8 at 11:59 PM</td>
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<td>12/4 - 12/8</td>
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<td>Week 16</td>
<td>Finalize Research Paper and Presentation</td>
<td>Research Paper Final Draft and Presentation due by 12/14 at midnight</td>
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<td>12/11 - 12/15</td>
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<td>Extra Credit Survey due by 12/14 at midnight</td>
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**Modules open each week on Saturdays at 12:01 AM and end the following Friday at 11:59 PM.**

**Missed Quizzes or Exams**

Missed quizzes and exams must be made up at least one week after the original due date without an excused absence. Students must contact Mr. Turner in order to schedule reopening of material. Extra consideration is made for excused absences.

**Technical Support**

If at any point during the course you experience technical difficulties in Brightspace, please let your instructor know immediately.

You will also need to contact the SFASU Brightspace Support Team by email (d2l@sfasu.edu) or phone (936.468.1919) for technical help.
Academic Integrity (4.1)

The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

Withheld Grades Semester Grades Policy (5.5)

Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the coursework because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course to compute the grade point average. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

Students with Disabilities

To obtain disability-related accommodations, alternate formats, and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services promptly may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.
Student Wellness and Well-Being

SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.

If you are experiencing concerns, seeking help, SFA provides a variety of resources to support students’ mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:

The Dean of Students Office (Rusk Building, 3rd floor lobby)

www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic Human Services, Room 202

www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub “The Hub”

Location: corner of E. College and Raguet St.
To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub

936.468.4008

thehub@sfasu.edu

Crisis Resources:

- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- johCrisis Text Line: Text HELLO to 741-741