Instructor – Dr. Jenny Rashall
- Email: jenny.rashall@sfasu.edu
- Phone: (936) 468-2340
- Office: E.L. Miller Science, Room 305
- Office hours (via Zoom): Monday/Wednesday: 1:30 PM – 3:00 PM; Tuesday/Thursday: 2:00 PM – 3:00 PM

Please feel free to request a Zoom meeting during my office hours to ask questions, discuss any problems you may be having with the material, or to help facilitate further understanding. If the above hours conflict with your schedule, please email me to make an appointment.

Course Materials:
- *Essentials of Geology* (6th Edition), Stephen Marshak (recommended*)

*Textbook is NOT required for Fundamentals of Earth Science. However, this text is a very useful learning tool as it is closely tied to the lecture material. I recommend purchasing or renting a copy if you feel that you may need “intellectual reinforcement” for the course.

Course Description: Fundamentals of Earth Science (GEOL 1301) Three semester hours, two hours lecture, two hours laboratory per week. An introduction to the fundamental principles of Earth Science. Topics include the earth’s structure and surface landforms; mineral and energy resources; geologic hazards such as volcanoes, earthquakes and landslides; water resources; and the unifying theory of plate tectonics. No prerequisites. Corequisite GEOL 1001.

Course Modality: You have the option to attend lecture face-to-face, via livestream (Zoom), or you may watch videos of the lecture in your own time. You are not required to choose one option for the entire semester, all students are welcome to fluctuate between the modalities as they prefer. The modality for lab will be outlined in the syllabus for GEOL 1001.

Note: I am not involved in the laboratory course (GEOL 1001) and I do not have access to the D2L course page for GEOL 1001. Any questions regarding lab should be directed to Mr. Wesley Turner, the laboratory coordinator, or your assigned graduate teaching assistant.

Program Learning Outcomes: There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.

Student Learning Outcomes for Lecture and Lab: After successful completion of this course students will be able to:

**SLO 1.** Demonstrate an understanding of fundamental geologic concepts as it relates to Earth processes and landscape evolution through geologic time. (Critical Thinking, Empirical and Quantitative Skills)

**SLO 2.** Use quantitative reasoning to interpret geologic data (tables, figures, graphs) from primary research, data assimilation and models to assess the differences in competing scientific theories associated with rock formation. (Critical Thinking, Empirical and Quantitative Skills)
**SLO 3.** Demonstrate knowledge on the interdependence of science and technology and the influences geologic reasoning associated with identifiable and testable hypotheses of geologic processes. (Critical Thinking, Teamwork)

**SLO 4.** Critically assess the interrelationships between geologic phenomena and communicate the resulting conclusions in visual and written formats. (Critical Thinking, Communication, Empirical and Quantitative Skills, Teamwork)

**SLO 5.** Demonstrate an understanding of the skills and attitudes necessary for effective teamwork in collaborative learning activities. (Communication, Teamwork)

**General Education Core Curriculum:** 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 **GEOL 1301** you are also enrolling in a Core Curriculum Course that fulfills the **Life and Physical Sciences** requirement.

<table>
<thead>
<tr>
<th>Core Curriculum Core Objective</th>
<th>Definition</th>
<th>How the Core Objective Will be Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Students will learn to identify minerals and rocks using a variety of physical and chemical properties.</td>
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<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Through a series of discussions, students will present interpretations and opinions to their classmates on various geologic topics.</td>
</tr>
<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>Students will use real-world isotope data to determine the age of rocks.</td>
</tr>
<tr>
<td>Teamwork</td>
<td>To include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.</td>
<td>Students will respond to each other is a series of discussions to share and compare different points of view.</td>
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<tr>
<td>Personal Responsibility</td>
<td>To include the ability to connect choices, actions and consequences to ethical decision-making.</td>
<td>In the Precious Resources unit, we will explore how each person’s choices can influence the environment.</td>
</tr>
<tr>
<td>Social Responsibility</td>
<td>To include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.</td>
<td>In the Precious Resources unit, we will explore how different communities are affected by climate change and limited natural resources.</td>
</tr>
</tbody>
</table>
Course Requirements: GEOL 1301 (Fundamentals of Earth Science) is an introduction to the study of the earth’s structure and natural processes. In this course, students will be introduced to and apply the scientific method to evaluate hypotheses regarding the earth’s structure, the distribution of natural resources, the immediate and long term impact of geologic hazards, and anthropogenic influence on the natural world. In lecture, students are responsible quizzes/activities, exams, and labs as outlined below.

Grading Breakdown & Policy:
LECTURE \( \rightarrow \frac{2}{3} \) (66.7%) of course grade; LAB \( \rightarrow \frac{1}{3} \) (33.3%) of course grade
- Quizzes/activities – 20% of LECTURE grade (2% each)
- Exams 1, 2, 3, 4 (not comprehensive) – 80% of LECTURE grade (20% each)
- Grading scale – A: 100-90; B: 89-80; C: 79-70; D: 69-60; F: < 60

Exams:
All lecture exams will include true/false and multiple choice questions with additional sections that may vary between exams but could include any or all of the following sections: 1) fill in the blank questions; 2) matching; 3) figure illustration; 4) multi-select. All lecture exams will be administered via D2L.

Lecture exams will cover material from lecture and any activities/assigned reading material in or outside of class. The final exam will be administered on the University’s scheduled date.

Make-up exams will only be held on Friday of the week preceding final exams (i.e., Friday of “dead week”).

Quizzes/Activities:
Quizzes/activities will occasionally be administered via D2L. Eleven (11) quizzes/activities will be administered but only the highest ten (10) grades will count for each student. Quizzes/activities will be randomly assigned throughout the semester as announced in lecture and via D2L “News Items” and are not included on the semester calendar. All activities will be available for a minimum of 48 hours after opening. You will need to check the D2L “News Items” regularly to be sure you do not miss any activities. No make-up assignments without prior notice or supporting documentation. No exceptions.

Attendance:
Attendance will be gauged through your activity in our online course platform (Brightspace/D2L). You are responsible for either coming to face-to-face lecture, attending via Zoom, or watching the uploaded videos in a timely manner.

The U.S. Department of Education Definition of the Credit Hour: A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week for approximately fifteen weeks for one semester of credit.

This class is a 3-credit hour course and has a weekly requisite lab where students will gain hands-on experience with earth materials, gathering and analyzing data, communicating their findings and working as a team to explain scientific processes. Expect to spend at least 6-9 hours a week on this
course reading outside content; completing classroom and laboratory activities, responding to discussion prompts, and studying for exams.

**Academic Integrity (4.1):** Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

**Definition of Academic Dishonesty:** Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one's own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one's paper without giving the author due credit.

Please read the complete policy at [http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf](http://www.sfasu.edu/policies/student-academic-dishonesty-4.1.pdf)

**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 course work 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 for the purpose of computing the grade point average.

**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 in a timely manner may delay your accommodations. For additional information, go to [http://www.sfasu.edu/disabilityservices/](http://www.sfasu.edu/disabilityservices/).

**Mental Health and Wellness**
SFA values students’ mental health and the role it plays in academic and overall student success. 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:**
SFA Counseling Services
www.sfasu.edu/counselingservices
Rusk Building, 3rd Floor
936.468.2401
### Course Schedule*

<table>
<thead>
<tr>
<th>Session</th>
<th>Lecture Topic</th>
<th>Chapter from <em>Essentials of Geology</em></th>
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<tbody>
<tr>
<td><strong>UNIT 1: THE DYNAMIC EARTH</strong></td>
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<tr>
<td>Aug. 24</td>
<td>Syllabus Overview; What is Geology?</td>
<td>Prelude; Ch. 1: The Earth in Context</td>
</tr>
<tr>
<td>Aug. 26</td>
<td>Origins of the Solar System</td>
<td>Ch. 1: The Earth in Context</td>
</tr>
<tr>
<td>Aug. 31</td>
<td>The Earth Systems</td>
<td>Ch. 1: The Earth in Context</td>
</tr>
<tr>
<td>Sep. 2</td>
<td>Plate Tectonics</td>
<td>Ch. 2: The Way Earth Works: Plate Tectonics</td>
</tr>
<tr>
<td>Sep. 7</td>
<td>Plate Tectonics (continued)</td>
<td>Ch. 2: The Way Earth Works: Plate Tectonics</td>
</tr>
<tr>
<td>Sep. 9</td>
<td>Earth Materials - Minerals</td>
<td>Ch. 3: Patterns in Nature - Minerals</td>
</tr>
<tr>
<td><strong>Sep. 14 – 15</strong></td>
<td>EXAM 1 (Open 9/14 at 6:00 AM – 9/15 at 11:59 PM)</td>
<td>Chapters 1, 2, 3</td>
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<tr>
<td><strong>UNIT 2: THE ROCK CYCLE</strong></td>
<td></td>
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<tr>
<td>Sep. 16</td>
<td>Igneous Rocks - Processes, Properties, &amp; Classification</td>
<td>Ch. 4: Up from the Inferno: Igneous Rocks</td>
</tr>
<tr>
<td>Sep. 21</td>
<td>Igneous Rocks (continued)</td>
<td>Ch. 4: Up from the Inferno: Igneous Rocks</td>
</tr>
<tr>
<td>Sep. 23</td>
<td>Sedimentary Rocks - Processes &amp; Classification</td>
<td>Ch. 6: Pages of Earth’s Past: Sedimentary Rocks</td>
</tr>
<tr>
<td>Sep. 28</td>
<td>Sedimentary Rocks (continued)</td>
<td>Ch. 6: Pages of Earth’s Past: Sedimentary Rocks</td>
</tr>
<tr>
<td>Sep. 30</td>
<td>Metamorphic Rocks - Processes &amp; Classification</td>
<td>Ch. 7: Metamorphism: A Process of Change</td>
</tr>
<tr>
<td>Oct. 5</td>
<td>Metamorphic rocks (continued)</td>
<td>Ch. 7: Metamorphism: A Process of Change</td>
</tr>
<tr>
<td><strong>Oct. 7-8</strong></td>
<td>EXAM 2 (Open 10/7 at 6:00 AM – 10/8 at 11:59 PM)</td>
<td>Chapters 4, 6, 7</td>
</tr>
<tr>
<td><strong>UNIT 3: GEOLOGIC PROCESSES</strong></td>
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<tr>
<td>Oct. 12</td>
<td>The Big Picture - Geologic Time</td>
<td>Ch. 10: Deep Time: How Old is Old?</td>
</tr>
<tr>
<td>Oct. 14</td>
<td>Volcanoes</td>
<td>Ch. 5: The Wrath of Vulcan: Volcanic Eruptions</td>
</tr>
</tbody>
</table>
Oct. 19   Earthquakes
          Ch. 8: A Violent Pulse: Earthquakes
Oct. 21   Fluvial Systems
          Ch. 14: Streams & Floods
Oct. 26   Marine Systems
          Ch. 15: Restless Realm: Oceans & Coasts
Oct. 28   Marine Systems (continued)
          Ch. 15: Restless Realm: Oceans & Coasts

Nov. 2-3  EXAM 3 (Open 11/2 at 6:00 AM – 11/3 at 11:59 PM)
          Chapters 5, 8, 10, 14, 15

UNIT 4: PRECIOUS RESOURCES

Nov. 4    Groundwater & the Hydrologic Cycle
          Ch. 16: A Hidden Reserve: Groundwater
Nov. 9    Hydrocarbon Systems
          Ch. 12: Riches in Rock
Nov. 11   Coal & Mineral Resources
          Ch. 12: Riches in Rock
Nov. 16   Alternative Energy
          N/A
Nov. 18   The Atmosphere System
          N/A

THANKSGIVING BREAK: No Class 11/21 – 11/27

Nov. 30   Global Change Pt. 1
          Ch. 19: Global Change in the Earth System
Dec. 2    Global Change Pt. 2
          Ch. 19: Global Change in the Earth System

Dec 7-9   EXAM 4 (Open 12/7 at 6:00 AM – 12/9 at 11:59 PM)  Chapters 12, 16, 19 and other material

*As the instructor of this course, I, Dr. Jenny Rashall, reserve the right to alter this schedule as needed throughout the semester. All students will be notified via D2L if any changes to the schedule are necessary and an updated syllabus will be provided.

Reminder – Quizzes/activities will be assigned randomly throughout the semester and are not included in the calendar above. See the Quizzes/Activities section of the syllabus for additional information.