Name: Dr. Ryan B. Anderson  
Department: Geology  
Email: ryan.anderson@sfasu.edu  
Phone: 936.468.2340  
Office: E.L. Miller Science, Room 305  
Office Hours: MWF: 11-1 PM, TR: 8-9 AM, or by appointment

Class meeting time and place: TR: 9:30 AM – 10:20 AM; E. L. Miller Science 335  
Final Exam Date & Time: Tuesday, December 10th, 8 a.m. to 10:30 a.m.

Please feel free to stop by any time to ask questions, discuss any problems you may be having with the material or to help facilitate further understanding. If these hours conflict with your schedule, please call or email to make an appointment.

Course Description:

Fundamentals of Earth Science (GOL 101) 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; the unifying theory of plate tectonics, the rock cycle, mineral and energy resources; geologic hazards such as volcanoes, earthquakes and landslides; and water resources. Required lab fee. No prerequisites. At the end of the semester, one grade will be given that incorporates both lab and lecture grades. The lab grade will count for 1/3 of the total grade.

Text and Materials:  
REQUIRED:  
- 4 scantrons (Form 882)  
- Fundamentals of Earth Science Laboratory Manual (available in all SFA bookstores)  
- Top Hat classroom response system (semester or yearly subscription, see details below)

RECOMMENDED*:  
In order to keep the cost of this course at a minimum, I am not requiring the textbook by Stephen Marshak. However, most of my lectures and illustrations in powerpoints will be constructed from this book. Attending lecture regularly and following along with the assigned reading from the free open source textbook that is required will be sufficient to get a good grade in this class. However, the illustrations and organization of the Marshak book (Essentials of Geology) are just all around better, so if you would like to follow along in this book you will be a true “rock” star. The 6th edition can be purchased for full price in the SFA bookstore, but you can find the 4th and 5th editions of this text for MUCH CHEAPER online. As far as I can tell, there are only minor changes between editions.

**EXTREMELY IMPORTANT**

**Top Hat Classroom Response System:**

We will be using the Top Hat ([www.tophat.com](http://www.tophat.com)) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message. This is also the system that I will be using to take role in class EVERYDAY, assign homework, and in class quizzes. Accordingly, you **absolutely must** have a Top Hat account set up and bring a device that you will be able to access Top Hat on by the second class meeting.

You can visit the Top Hat Overview ([https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide](https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide)) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if don’t receive this email, you can register by simply visiting our course website: [https://app.tophat.com/e/601768](https://app.tophat.com/e/601768)

Note: our Course Join Code is 601768

Top Hat requires a paid subscription, and a full breakdown of all subscription options available can be found here: [www.tophat.com/pricing](http://www.tophat.com/pricing). Fortunately, if any of your other courses use Top Hat, you only have to pay for one subscription. You don’t have to pay for Top Hat usage by individual course. Last I checked, it was approximately ~$26 per semester. I know and apologize that it is not free, but it is much cheaper than requiring you to pay more than $90 for a text book.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email ([support@tophat.com](mailto:support@tophat.com)), the in app support button, or by calling 1-888-663-5491.
Grading Policy:
Lecture for 2/3 (66.7%) of the course grade, Lab counts for 1/3 (33.3%) = (100%)

Grade breakdown by points

- Exams (4 exams = 110 points each)          440 points (44%)
- Pre-Lecture Preparation Question(s)       27 points (2.7%)
- Attendance                                 50 points (5%)
- In class participation                     50 points (5%)
- Post-Lecture Homework Assignments          100 points (10%)

Total Grade                               667 Lecture (66.7%) + 333 points for Lab (33.3%) = 1000 points (100%)

Grading Scale:
- 90-100%    A
- 80-89%     B
- 70-79%     C
- 60-69%     D
- < 60%      F

Course Requirements:
GOL 101 (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
influences on the natural world. 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.
Attendance is required and counts for 5% of your lecture grade.

There are several resources for help on campus, such as tutoring in the AARC, along with your
TA’s in the lab can answer questions. I am usually available in my office and almost always
available to help unless I am teaching and/or helping another student. I have set office hours, but
can also be available by appointment, and email (note I most likely won’t answer an email after 6
pm or so). We are here to help you succeed, while also helping you learn a bit about the world
you inhabit.

Details of the course requirements are broken down below. We will briefly cover them on our
first class meeting, but please read in the syllabus in detail and be familiar with all aspects of
what is required of you in class.

Exams
All lecture exams may include any or all of the following sections: 1) multiple choice questions;
2) true/false questions; 3) fill in the blank questions; 4) short answer questions; 5) figure
illustration; 6) short essay questions. All exams will take place in room 335 unless otherwise
stated in class.
The exams will cover questions from lecture, assigned reading material, activities conducted in class, and outside homework assignments. You will need a Scantron (Form 882) and a number 2 pencil for the exams. The essay questions are part of the text and sometimes extra credit. When answering the essay questions, please use complete sentences, correct grammar, and spelling. The final exam will be given at the University’s scheduled time.

No extra credit will be assigned to help improve your grade, so come prepared to class and to exams. It is imperative that attend all lectures and labs, pay attention in class, take detailed notes, and use those to study. 22.7% of your grade is just from attending class and participating during class using Top Hat. You must be in class to get a good grade- I want to see you succeed!

**Pre-Class Preparation Questions:**
Once a week, a small task or activity will be assigned in Top Hat. These usually consist a question or few questions from a one page or less reading assignment or a youtube video. These tasks should take no more than 15-20 minutes and are designed simply to help students pre-think a concept we will discuss in lecture. The task and question set will be assigned the day before Thursday lecture and will be closed at start of class the Thursday.

**Attendance Policy:**
- Daily attendance will be taken for university accounting purposes. Attendance will be taken using the Top Hat class room response system, so a subscription to Top Hat is required! Success in this course will reflect the level of effort you put into the course.
- Be prepared for lectures by reading the material to be covered prior to attending class. Questions are encouraged and welcome and we will make time periodically to submit in class question to Top Hat. Do not hesitate to ask questions!
- You will need either a smart phone, laptop, or tablet in order to participate during class. However, please refrain from texting, browsing the internet, and using social media during this time. Please have your device set to silent or vibrate so as to not disrupt the lecture. Questions and mini quizzes will be interspersed throughout lecture every day, so it is imperative that you are paying attention so that you can answer the questions and earn full points.
- If you are late to class, please seat yourself quietly and see me after lecture so that you can earn attendance points. Try not to be late because it interrupts others in class. If you need to use the restroom or become ill, please excuse yourself from the lecture quietly.

**Homework:**
Homework will be assigned and completed within the Top Hat classroom response system. Homework questions will encompass the material we covered in class that week and will be assigned on Thursday and due before the start of class Tuesday of the following week. The material you will need to complete homework assignments will be found within Tophat assignment, notes from lecture, the book chapters we covered that week, and the power point slides. Power point slides from lecture will be made available after each class meeting. Think of the homework you are assigned as a review sheet for Exams. Questions on the exams will be developed primarily from the concepts we discuss in class and are reinforced on the homework assignments.
Concise Course Calendar (may be subject to change):

- What is Geology?
- Forming the Universe: The Earth in Context
- Plate Tectonics
- Patterns in Nature: Minerals
- Magma and Igneous Rocks
- Sediments, Soils, Weathering, and Sedimentary Rocks
- Metamorphism: A Process of Change
- Earthquakes, Crustal Deformation, and Mountain Building
- Rivers, Groundwater, Oceans, and Coastlines
- Energy and Mineral Resources, Global Changes in the Earth System

Course Schedule
(Schedule is tentative and subject to changes)

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Reading</th>
<th>Assignment</th>
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</thead>
<tbody>
<tr>
<td>Aug. 27th</td>
<td>Course Information, What is Geology?, The Scientific Method</td>
<td>Syllabus, Johnson Ch. 1, Marshak Prelude</td>
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<tr>
<td>Aug. 29th</td>
<td>Earth in Context: An image of the Universe</td>
<td>Johnson Ch. 8 (sections 8.1-8.2), Marshak Ch. 1</td>
<td>Homework 1</td>
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<tr>
<td>Sep. 3rd</td>
<td>Plate Tectonics</td>
<td>Johnson Ch. 2, Marshak Ch. 2</td>
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<tr>
<td>Sep. 5th</td>
<td>Plate Tectonics</td>
<td>Johnson Ch. 2, Marshak Ch. 2</td>
<td>Homework 2</td>
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<tr>
<td>Sep. 10th</td>
<td>Patterns in Nature: Atoms and Minerals</td>
<td>Johnson Ch. 3, Marshak Ch. 3</td>
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<tr>
<td>Sep. 12th</td>
<td>Mineral Groups</td>
<td>Johnson Ch. 3, Marshak Ch. 3</td>
<td>Exam 1 Review (required)</td>
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<tr>
<td>Sep. 17th</td>
<td>Exam 1</td>
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<tr>
<td>Sep. 19th</td>
<td>Up from the Inferno: Magma and Igneous Rocks</td>
<td>Johnson Ch. 4, Marshak Ch. 4</td>
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<tr>
<td>Sep. 24th</td>
<td>Volcanoes!</td>
<td>Johnson Ch. 4, Marshak Ch. 5</td>
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<tr>
<td>Sep. 26th</td>
<td>Pages of the Past: Weathering, Soil, Sediments and Sedimentary Rocks</td>
<td>Johnson Ch. 5, Marshak Interlude B</td>
<td>Homework 3</td>
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<tr>
<td>Oct. 1st</td>
<td>Sedimentary Rocks</td>
<td>Johnson Ch. 5, Marshak Ch. 6</td>
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<tr>
<td>Oct. 3rd</td>
<td>Metamorphism: A Process of Change</td>
<td>Johnson Ch. 6, Marshak Ch. 7</td>
<td>Homework 4: Campus Scavenger Hunt</td>
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<tr>
<td>Oct. 8th</td>
<td>Plate Tectonics and the Rock Cycle</td>
<td>Johnson Ch. 6, Marshak Interlude C</td>
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<tr>
<td>Oct. 10th</td>
<td>Geologic Time and the Age of the Earth</td>
<td>Johnson Ch. 7, Marshak Ch. 10</td>
<td>Homework 5</td>
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<td>Oct. 15th</td>
<td>Geologic Time and the Age of the Earth</td>
<td>Johnson Ch. 7, Marshak Ch. 10</td>
<td>Exam 2 Review (optional)</td>
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<td>Oct. 17th</td>
<td>Exam 2</td>
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<tr>
<td>Oct. 22nd</td>
<td>Earthquakes and Seismology</td>
<td>Johnson Ch. 9, Marshak Ch. 8</td>
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<tr>
<td>Oct. 24th</td>
<td>Faults, Deformation, and Mountain Building</td>
<td>Johnson Ch. 9, Marshak Ch. 9</td>
<td>Homework 6</td>
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<tr>
<td>Date</td>
<td>Topic</td>
<td>Reading</td>
<td>Assignments</td>
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<tr>
<td>Oct. 29th</td>
<td>Faults, Deformation, and Mountain Building</td>
<td>Johnson Ch. 9, Marshak Ch. 9</td>
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<td>Oct. 31st</td>
<td>Landslides and Other Mass Movements</td>
<td>Johnson Ch. 10, Marshak Ch. 13</td>
<td>Homework 7</td>
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<td>Nov. 5th</td>
<td>The Geology of Running Water</td>
<td>Johnson Ch. 11, Marshak Ch. 14</td>
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<td>Nov. 7th</td>
<td>Groundwater: A Hidden Resource</td>
<td>Johnson Ch. 11, Marshak Ch. 16</td>
<td>Homework 8</td>
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<td>Nov. 12th</td>
<td>Oceans and Coastlines</td>
<td>Johnson Ch. 12, Ch. 15</td>
<td>Exam 3 Review (optional)</td>
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<tr>
<td>Nov. 14th</td>
<td><strong>Exam 3</strong></td>
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<tr>
<td>Nov. 19th</td>
<td>Energy and Mineral Resources</td>
<td>Johnson Ch. 16, Marshak Ch. 12</td>
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<tr>
<td>Nov. 21st</td>
<td>Energy and Mineral Resources</td>
<td>Johnson Ch. 16, Marshak Ch. 12</td>
<td>Homework 9</td>
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<tr>
<td>Nov. 26th</td>
<td>Thanksgiving Holiday (no class)</td>
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<tr>
<td>Nov. 28th</td>
<td>Thanksgiving Holiday (no class)</td>
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<tr>
<td>Dec. 3rd</td>
<td>Global Change in the Earth System</td>
<td>Johnson Ch. 15, Marshak Ch. 19</td>
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<tr>
<td>Dec. 5th</td>
<td>Global Change in the Earth System</td>
<td>Johnson Ch. 15, Marshak Ch. 19</td>
<td>Homework 10</td>
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<td>Dec. 9th</td>
<td>Finals Week</td>
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<td>Final Exam Review (optional)</td>
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<tr>
<td>Dec. 11th</td>
<td>Finals Week</td>
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**Classroom Etiquette:**

- Headphones, earbuds, or auditory devices will not be allowed during lecture (unless necessary and cleared by the Office of Disability Services).
- Basically, put yourself in my shoes. If it seems disrespectful or disruptive, you probably shouldn’t do it during class.

**Academic Integrity (A-9.1)**

Academic integrity is the 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 a 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/academic_integrity.asp](http://www.sfasu.edu/policies/academic_integrity.asp)

**Withheld Grades Semester Grades Policy (A-54)**

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 will automatically become 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 of the purpose of computing the grade point average.

The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

**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/)

**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 service course.

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

The Texas Higher Education Coordinating Board (THECB) 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:

**CO 1. Critical Thinking Skills** - creative thinking, innovation, inquiry, evaluation and synthesis of information, and analysis.

**CO 2. Communication Skills** - Effective development, interpretation and expression of ideas through written, oral, and visual communication

**CO 3. Empirical and Quantitative Skills** - manipulation and analysis of numerical data or observable facts resulting in informed conclusions
CO 4. **Teamwork** - the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

**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 time.

**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.

**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.

**SLO 4.** Critically assess the interrelationships between geologic phenomena and communicate the resulting conclusions in oral, visual, and written formats.

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