Fundamentals of Earth Science Laboratory

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**Department:** Earth Sciences & Geologic Resources  
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**Office:** E.L. Miller Science, Room 303  
**Office Hours:** This is an online course and office hours will be offered electronically.

The lecture and laboratory portion of this class are both online classes. Please refer to the detailed calendar found as a webpage in this module. There is a mandatory quiz associated with this syllabus, so please read all the information in this unit carefully and then complete the **Course Information and Syllabus Quiz** in order to proceed into the course material.

**Note:** this quiz must be completed before any of the course material will be made available, the lecture and lab modules will remain locked until you complete this quiz.

**Required Materials:**
- **Fundamentals of Earth Science Laboratory Kit** (required, available from the SFA Barnes & Noble bookstore)

*No textbook is required, but I recommend that you purchase a text if your personal learning style benefits from having a textbook for reference. Any previous editions of introductory or physical geology textbook purchased through various online booksellers would be a viable option. Textbook editions vary little in content; updates are generally associated with pictures and graphics.*

**Course Description:**
Fundamentals of Earth Science (GEOL 1301) 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. GEOL 1001 corequisite.

**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.

**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 GEOL 1301 Fundamentals of Earth Science, you are also enrolling in a Core Curriculum Course that fulfills the Life and Physical Sciences requirement.

- **Critical Thinking Skills** – creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information. Learn to identify minerals and rocks based on various physical and chemical attributes.
- **Communication Skills** – effective development, interpretation and expression of ideas through written, oral and visual communication. Present ideas for weekly discussion prompts corresponding to course material.
• **Empirical and Quantitative Skills** – manipulation and analysis of numerical data or observable facts resulting in informed conclusions. Real-world data used in various laboratory activities for calculations of geologic phenomena.

• **Teamwork** – the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. Students will work together for a group project analyzing different alternative energy methods.

• **Personal Responsibility** - to include the ability to connect choices, actions and consequences to ethical decision-making. We will explore how our actions affect the environment and contribute to change.

• **Social Responsibility** - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities. Study how different groups around the world are affected by limited water and other various Earth materials.

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

• Demonstrate an understanding of fundamental geologic concepts as it relates to Earth processes and landscape evolution through geologic time.

• 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.

• Demonstrate knowledge on the interdependence of science and technology and the influences geologic reasoning associated with identifiable and testable hypotheses of geologic processes.

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

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

**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.

The **Federal 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 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. Fundamentals of Earth Science 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 earth science 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 earth materials and processes. Successful completion of all elements for the course requires at least six hours of additional student work each week.

**Time**
Remember, you are expected to spend the same amount of time on online courses that you would spend for in the classroom for face-to-face courses. That is, expect to spend two hours per week on the lecture portion and two hours per week on the laboratory portion. In addition, success in this course would also require additional time spent in the material and studying; reports indicate that two to three additional
hours (per credit hour) be spent—-independent of whether the class is online or face-to-face. Many of you are choosing to take an online course because of your work schedule, family responsibilities, and scheduling conflicts, so your time is precious. Be aware of the time commitment required by this course and work responsibly.

Course Topics to be covered: *

Unit One - Earth in Context
- Geologic Time / Earth in context (Lab 1)
- Minerals and Native Elements (Lab 2)

Unit Two - Earth Structure and the Rock Cycle
- Intrusive Igneous Rocks (Lab 3)
- Weathering and Erosion
- Sedimentary Rocks (Lab 4)
- Metamorphic Rocks (Lab 5)

Unit Three - Earth Processes
- Plate Tectonics and the Natural Environment (Lab 6)
- Earthquakes (Lab 7)
- Volcanoes
- Rock Deformation and Geohazards (Lab 8)

Unit Four - Earth Resources
- Fossil Fuels (Lab 9)
- Mineral Resources (Lab 10)
- Water Resources (Lab 11)
- Soil Resources (Lab 12)

Unit Five - Earth in Society
- Alternative Energy
- Populations and Resources

*Please see the Course Calendar webpage for the dates associated with each of these topics.

Access to Content
You will be able to receive your score on exams and quizzes once everyone has completed the exam and any answers that need to be individually graded have been scored. In these cases, time will be needed to review the assessments and make sure questions were asked and graded fairly. Answers to quiz and exam questions will be available once every classmate has submitted their assessment. Quizzes, unit, and module content will be available until 11:59 p.m. the day before an exam, but module content cannot be viewed the day of an exam. So, plan appropriately!

Lecture Examination Schedule:*  
- Exam 1: Monday, Sep. 11 (8:00 a.m. CT-11:59 p.m. CT)  
- Exam 2: Monday, Oct. 2 (8:00 a.m. CT-11:59 p.m. CT)  
- Exam 3: Monday, Oct. 23 (8:00 a.m. CT-11:59 p.m. CT)  
- Exam 4: Monday, Nov. 27 (8:00 a.m. CT-11:59 p.m. CT)  
- Exam 5: Monday, Dec. 11 (8:00 a.m. CT-11:59 p.m. CT)

Laboratory Examination Schedule:*  
- Lab Midterm: Wednesday, Oct. 4 (8:00 a.m. CT-11:59 p.m. CT)  
- Lab Final: Friday, Dec. 8 (8:00 a.m. CT-11:59 p.m. CT)

*Please see the Course Calendar webpage for the opening and closing times associated with these exams.

All exams will 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 online and be delivered via d2l.** The exams will cover questions from lecture modules and assigned activities and outside sources (videos, webpages) referred to in the material. Laboratory exams will cover materials in the laboratory including rock and mineral identification and concepts developed in weekly activities.

There are between 30 and 70 questions each on each exam, and you will be given 60-75 minutes to complete the exams. The exams are **not** cumulative, but they are timed and you will not have adequate time to refer back to reference material. Questions on lecture exams and quizzes are written by the instructor, and the assessment content has been presented in the online content. D2L randomly selects questions from a question bank, and they appear one question at a time. You may not return to any question and change your answer after leaving that page so be sure of your response (study ahead of time!) before answering. It is recommended that you save your responses as you complete each question because of unknown timing of computer or power failure. I cannot help you if questions have not been saved. Once the time allotment for the exam has expired, the exam will be ended and scored. No outside work or extra credit will be assigned to help improve your grade, so be prepared for the quizzes and exams. It is imperative that you log on and participate in all course material, pay attention to the course calendar, and keep up with the due dates for quizzes, discussions, and exams. In other words – get your money’s worth!

**Late Work Policy**
Due to the accelerated nature of this course, **NO LATE WORK WILL BE ACCEPTED BEYOND THE SCHEDULED DEADLINES.** This is not a self-paced course and you must keep up with the weekly assignments. Each week you will be required to interact with your classmates and me by participating in discussion forums, completing laboratory module activities, and completing quizzes in lecture and laboratory. It is imperative that you check the course calendar daily and be aware of the opening and closing dates of the modules and associated activities.

**Dependable internet connection**
Especially when taking quizzes or exams, always rely on a dependable internet connection. I do not recommend taking an assessment via your phone or any public wireless connection (McDonalds, Starbucks, etc).

**Attendance**
Because this is an online course, your activity on D2L will be used for university attendance reporting.

**Discussion Board**
The Discussion Board can be used as a place to exchange information between the instructor and classmates. There will be a general "Questions" post where students can ask questions regarding the course content. This is helpful to all, and I will respond to questions as quickly as possible. I always appreciate questions and am happy to try to help. Please keep your discourse respectful to all, inappropriate comments will not be tolerated.

**Lecture Grading Policy:**
- Five exams (Exam 1 = 40 points, Exam 5 = 60 points, Exams 2-4 = 100 points each) = 400 points
- Fifteen online quizzes @ 10 points each = 150 points
- Fifteen discussion posts @ 10 points each = 150 points
- Total possible points = 700 points
- Lecture grade = your total points / 700, then multiply by 100
- *Example: your lecture point total 525 / 700 = 0.75 x 100 = 75*

**Laboratory Grading Policy:**
- Two exams @ 100 points each = 200 points
- All laboratory activities = 200 points, including:
Laboratory quizzes, 9 quizzes @ 15 points each = 135 points
Plate Tectonics Map and Discussion Activity = 20 points
Earthquake Press Release = 20 points
Soil Resources Presentation = 25 points
• Total possible points = 400 points
• Laboratory grade = your total points / 400, then multiply by 100
• Example: your laboratory point total 310 / 400 = 0.77 x 100 = 77

Course Final Grading Policy
• Lecture counts 2/3 (66.7%) of the final course grade
• Lab counts 1/3 (33.3%) of the final course grade
• Total Points for Final Grade: 33.3% (Lab) + 66.7% (Lecture) = final course grade
• Example: Lecture grade = 75, Lab grade = 77
• 75 x .667 = 49.36; 77 x .333 = 25.64; 49.36 + 25.64 = 75.67 final course grade

Grade Scale: 90-100 + A, 80-89 + B, 70-79 + C, 60-69 + D, < 60 = F
Grades from the lecture and lab will be combined, with the lab counting 1/3 of the grade. You will receive one grade for the entire course, assigned by your instructor.

Academic Integrity:
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:
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 the Office of Disability Services opens in new window website.

Student Wellness & 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)
Crisis Text Line: Text HELLO to 741-741
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*Let's get started!
Begin intro materials and Earth in Context/Geo Time*

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*Due: Earth in Context/Geo Time*

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*Due: Minerals & Native Elements
Start: Igneous rocks module*

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*EXAM 1
Start: Weathering & Sed Rocks*

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*Due: Igneous Rocks
Start: Metamorphic Rocks*

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