
GEOLOGY 1301 002

Fall 2024

EARTH SCIENCES I

SYLLABUS

LECTURE: F2F

DR. Rex E Crick

Changes announced in class, via email, and items on Blackboard.

Instructor: Dr. Rex E Crick

Office: STEM 227 / 345 / bull pen in Suite 311

Lectures: MWF from 9 – 9:50 am @STEM BUILDING **RM 227**

Office Hours: MW from 10 am – 11 am (or by appointment) STEM RM 375 or 227 or 311 (bullpen)

Tel. #: 210-784-2818

Cell #: 713-471-5636

Email: rcric01@tamusa.edu

Course Description:

This is an interdisciplinary earth science course, incorporating aspects of mathematics, chemistry, biology, and physics to study geological, oceanic, and atmospheric processes. The broad questions examined in this course are the **Learning Outcomes** listed below. Plate tectonics, earth materials, landforms, structures, climate, and natural resources are the major topics of study. Emphasis will be on the observations and hypotheses used to interpret earth system processes. This course meets the standards for the 'Life and Physical Sciences' category of courses under the core curriculum.

Learning Outcomes:

1. Explain the current theories concerning the origin of the Universe and of the Solar System.
2. Explain the place of Earth in the Solar System and its relationships with other objects in the Solar System.
3. Relate the origin and evolution of Earth's internal structures to its resulting geologic systems, including Earth materials and plate tectonic activities.
4. Explain the operation of Earth's geologic systems and the interactions among the atmosphere, the geosphere, and the hydrosphere, including meteorology and oceanography.
5. Explain the history of the Earth including the evolution of earth systems and life forms.

Required Textbooks and Online Class Resource

1. '**Understanding Earth**', by Grotzinger and Jordan, 8th edition. ISBN-10:1464138745 ISBN-13:978-1464138744
2. '**Understanding Earth**', by Grotzinger and Jordan, 8th edition, **E-BOOK**. ISBN-9781319324643

BLACKBOARD: <https://tamusa.blackboard.com>

Blackboard will be used to communicate information about the course. Course documents, lecture material, videos, and links will be available on blackboard for downloading, viewing, or printing. You will also be able to check the status of your performance in this course. It is your responsibility to check Blackboard for new announcements and course materials, and to report promptly any errors in your grades.

Course schedule: The lecture topics, readings, and exam dates are listed on the following course calendar. Lecture topics dates **may** change as necessary; **exam dates will not**. Please complete the reading assignments prior to each lecture.

Geology 1301 002 Course Schedule

Week	Date	Topic	Chapter Readings
1	8/26/24	Introduction to Course & The Earth System	1
		The Scientific Method & Earth Details	1
		Interacting Components & Geologic Time	1
2	9/02/24	Labor Day – No Class – Plate Tectonics: The Unifying Theory	2
		Plate Tectonics: Its Discovery and History	2
		Plate Tectonics: How it works and how we know it works	2
3	09/09/24	Plate Tectonics/Earth Materials: Cont'd	2/3
		Earth Materials: Matter, Minerals, and Rocks	3
		Earth Materials: What are Rocks?	3
4	09/16/24	Igneous Rocks – Where do they come from	4
		Igneous Rocks – Intrusions & Extrusions (5:119-129)	4/5
		Igneous Rocks and Plate Tectonics – Review	4
	09/20/24	EXAM I (Weeks 1-4; Chapters 1-4)	
5	09/23/24	Sedimentation – How It Works	6
		Sedimentary Environments	6
		Sediment to Sedimentary Rock – Earth's History Book	6
6	09/30/24	Causes of Metamorphism	7
		Types of Metamorphism	7
		Plate Tectonics and Metamorphism	7
7	10/07/24	Why rocks deform and what does this tell us	8
		Styles of deformation	8
		Deformations contribution of understanding Earth's history	8
8	10/14/24	Clocks in Rocks and Earth Time	9
		Relative Earth Time	9
		Absolute or Radiometric Time – Review	9
	10/18/24	EXAM II (Weeks 5-8; Chapters 6-9)	
9	10/21/24	The Climate System – What it is	12
		Greenhouse: A necessary condition for life	12
		Climate Variation: Earth's natural state	12
10	10/28/24	Civilization's Role: We are part of the Geosystem	13
		It's Impact	13
		Energy Resources and the Future	13
11	11/04/24	Global Change: Real or imagined? What does Earth say?	14
		Types of Change	14
		Why do we claim a role?	14
12	11/11/24	Early History of the Terrestrial Planets	20
		Direct Evidence	20
		Indirect Evidence – Review	20
		EXAM III (Weeks 9-12; Chapters 12-14; 20)	
13	11/18/24	History of the Continents: North America	21
		The world	21
		Continental Growth	21
14	11/25/24	Geobiology, paleobiology & paleobiogeography	22
	11/27/24	Reading Day	
Thanksgiving Break			
15	12/02/24	Evolutionary Radiations and Mass Extinctions -	22
		Review for Final Exam (All chapters and weekly assignments)	
16	12/09/24	FINAL EXAM: MONDAY 12 pm to 1:50 pm	

CLASS MEETINGS: Our class meetings will be **interactive face-to-face meetings**. Traditional and untraditional lectures will convey the basic information necessary to understand the topic being addressed. Class time will also be used for discussing issues, doing in-class exercises and projects, and interpreting data so you can learn by doing. Your participation is crucial to your success in the course!

- 1. Lectures and Readings** - The goal of the readings is to prepare for the subject under discussion. The reading assignments in the textbook will parallel the lecture material. If you keep current with the readings, you will get more out of the course, and you'll also have an easier time preparing for the exams. To do well in this course, listen to all lectures, take good notes, do the assignments and *read the assigned material*. It is to your advantage to read the material before class. **The exams will be based on the material presented in power-point lectures and on the assigned readings and videos.**
- 2. Films and videos:** There will be a few good films and videos during the semester. Questions will be assigned.
- 3. Assigned homework exercises:** Throughout the semester, we will be having weekly exercises. The exercises will account for 20% of the course grade.
- 4. In Class Projects:** These are small content sensitive group projects to be completed during class time. The projects are designed to give students hands-on learning experience solving scientific problems with the freedom of asking questions in a tutoring environment. These projects are 15% of the course grade.
- 5. HOUR EXAMS:** Three **HOUR EXAMS** (actual duration 50 minutes) **will be given during class time** (see attached schedule) through Blackboard. The exams will account for a total of 45% (15% each) of your grade in the course. While the exams will not be explicitly comprehensive, the material in this course builds upon previously studied concepts. Once a concept has been introduced, that concept is fair game for subsequent lectures and exams – this is a huge benefit as means of reviewing material over the semester. All exams will take during class-time in the classroom (see schedule). You will need to bring to class on the day of an exam a laptop or tablet capable of running the most recent student version of Respondus Browser. If you need a laptop, we may be able to grab a few from Biology. None of the current campus computer labs can accommodate a class of this size.
- 6. The FINAL EXAM** will cover the last segment of the course plus additional questions from previous material; i.e., the Final Exam is cumulative and will be worth 20% of your grade in the course.
- 7. Homework Exercises:** Multiple choice questions, short and long answer type questions, and scientific problem solving
- 8. Three hour exams:** Multiple choice questions, matching, short and long answer type questions, scientific problem solving
- 9. Comprehensive final exam:** Multiple choice questions, matching, short and long answer type questions, and scientific problem solving
- 10. Questions about grades:** Questions or concerns about a grade on an exam or assignment should be brought to my attention within one week after the day grades are posted. Normally after one week, the grade will stand as recorded; there will always be legitimate exceptions.
- 11. Excused Absences:** If you miss an exam because of illness, you should contact me as soon as possible by Blackboard email or at rcric01@tamusa.edu. If need-be, have a friend, spouse, partner, or parent contact me; communication is essential.
- 12. Final Course Grade computation:**
 - a. Hour Exams = 45%
 - b. Homework = 20%
 - c. In-class projects = 15%
 - d. Final Exam = 20%

13. Grade computation and grading procedure:

Percentage	Letter Grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
Below 60	F

14. Academic Integrity Policy: Texas A&M University - San Antonio is committed to the maintenance of the highest standards of integrity and ethical conduct of its students. This level of ethical behavior and integrity will be monitored in the course. See university policy on academic integrity <http://www.tamusa.edu/studentengagementsuccess.edu>

15. What you can expect:

- a) A broad introduction to Earth science, the scientific principles upon which it is based, and the importance of geology in our daily lives.
- b) Class meetings that are interactive, with numerous in-class activities and exercises. Grades will be based on both individual and group assignments, and your participation in these exercises.

16. What I need from you so I can help you succeed in the course – this is my most important semester goal:

- **Communication:** If I do not know of problems, then I cannot offer a fix
- **Stay current** with all assignments
- **Stay active** in class participation
- **Attend** all class & lab meetings
- **Engage** with me and the material
- **Review your class notes** each evening; *what's not clear to you?* Write it down – ask for clarification in lecture or lab or office hours or anywhere you find me.
- **Review** the previous class notes, *do you have any questions for me?*
- **Participate** in and complete all class exercises
- **Participate** actively in class meetings
- **Study** for and take all 3-hour exams and the final exam
- **Ask questions**, participate, get involved with the material
- **Seek help** with your questions (in person or email): questions and answers will be converted into anonymous FAQs and available to the class on Blackboard.

17. Please remember the following beliefs:

- a) You can reach any goal, but we all have either had or will need help of some kind of help at some point to reach our goals whether it is a mentor, role model, etc.
- b) How you do anything is how you will do everything.
- c) Students do not ask stupid questions; and students should never expect or accept stupid answers.