

GEOL1404: Historical Geology

“We have become, by the power of a glorious evolutionary accident called intelligence, the stewards of life’s continuity on earth. We did not ask for this role, but we cannot abjure it. We may not be suited to it, but here we are.”

- Stephen Jay Gould

Spring 2018

MWF: 9:00-9:50 in LDB 319

TTh: 9:30-10:50 in LDB 318

Instructor: Professor Andy Fraass
fraass@shsu.edu
Office: 313 LBD
(936) 294-1593 (office)

Office Hours: MF 10:00-11:00, Th 2:00-2:00 + by appointment

Lab: Professor Joseph Hill
geojoe@shsu.edu
Office: 322 LBD

Required Textbook: *Earth System History*, Stanley and Luczaj ISBN-10: 1-4292-5526-9; ISBN-13: 978-1-4292-5526-4

Required Supplies (Lecture): 882 E Scantron Sheets (You will need 8)

I. Rationale:

Our Earth has a 4.6 billion year history. What happened in between? How do we know? Most importantly, why should you care?

II. Course Aims and Outcomes:

Aims

This course is to provide you with a general foundation of scientific literacy, using the story of Earth as an example.

Specific Learning Outcomes:

By the end of this course, you will understand:

1. What the sedimentary rock record is and what it tells us about the history of life. They will be able to identify sedimentary rock types, and describe what they can tell us about the past environment.

2. How the geological time scale has been constructed, the differences between relative and absolute time, the principles of biostratigraphy, magnetostratigraphy, radiometric dating methods, and so on.
3. The basic principles of stratigraphy and sedimentology. Steno's three principles, tectonics, stratigraphic sections and correlation.
4. The history of our planet. We will walk through key events in our past like: the great oxygenation event, Cambrian explosion, mass extinctions.
5. Past and modern climate change.

III. Format and Procedures:

This course is a mix of lecture and lab. We will sometimes do in-class exercises during the lecture portion.

IV. Expectations:

Attendance:

Attendance is going to be recorded by answering in class quiz questions through Kaboodle (it's free). All students are expected to have some method of doing these online quizzes (phone or laptop). If you do not, please come discuss it with me and we'll come up with a solution. You are expected to create an account with your first and last name.

If you have an issue (sickness, death in the family, accident, work-related issue) please come see or inform me as quickly as possible and we will work out a solution. **If it is a conflict with an exam, you will need to take the exam prior to the normal exam date. If there is a conflict day of an exam, please contact me as soon as you can.**

Attendance counts for 5% of your final grade. You can miss 2 weeks of class (6 days MWF, 4 TTh) before I begin counting absences. I will not be accepting excuses for missing class after those 2 weeks, except under extreme circumstances. An example of an extreme circumstance is being hospitalized for 3 weeks.

Email Policy:

I will respond to student emails within 2 business days. You can write casual emails, but they must be in complete sentences and words (If I see a 'u' instead of 'you' I'm not going to respond.) The subject line should include the course number (GEOL1404). If I have not responded in two days, go ahead and resend the email.

Phones and laptops:

I realize that everybody has lives, and sometimes you're are waiting for a very important phone call. Please, be respectful of your time, my time, and the attention of those around you. Leave the room. Don't mess around on your phone while you're in class. It's *really obvious* and it irritates your instructors. Irritated instructors assign more

work. Yes, that is a threat. Even more, it distracts your classmates (there is lots of research on this). While I don't have a problem with individuals making bad choices for themselves, when it affects others it's a problem.

Similarly, laptops can be used for taking notes. Facebook and Twitter are not note-taking services. We're in a small room. I can tell.

V. Grading Breakdown:

- Labs (25%)
- Timescale Quiz (5%)
- Exams 1-3 (15% each)
- Final Exam (20%)
- Attendance (5%)

If you would like to challenge a grade, please provide that challenge in writing with sufficient detail to explain the error, support your claim. I **will not** change anything on the spot.

Tentative Grading Scale

A = 90-100%

B = 80-89.99%

C = 70-79.99%

D = 60-69.99%

F = <59.99%

Testing

Testing will be done in a pyramid-style (cooperative) examination. Each examination will be divided into two stages. You will work alone during the first stage, complete, and hand in the examination. During the second stage, the same questions will be answered open book, open notes, and you will be allowed to work with your neighbors. Stage one will count for 75% of your grade, Stage two is 25%.

All in-class exams (midterms) will be 50 minutes total for both the MWF section and the TTh.

VI. Academic Integrity

“The University expects all students to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action.”

There **will** be consequences for cheating in accordance with the [Sam Houston State University Academic Dishonest Procedure](#). See Section 5.3 Academic Honesty.

Anything **I** consider cheating (copying work, etc.) will receive a penalty, with possibly a zero on the assignment.

VII. Accommodations for students with disabilities

If you require any kind of accommodations please come talk to or email me as soon as possible. You will also need to work with the [Services for Students with Disabilities](#) (SSD) Office (telephone 936-294-3512, TDD 936-294-3786).

VIII. Diversity and Discussion Statement

We are all individuals with our own experiences, backgrounds, and perspectives. We will do our best to be respectful of that diversity. Please let me know if there are additional efforts that can be taken to support learning about our shared Earth.

This is a course where we will discuss a variety of subjects, and not everyone in the room will agree. You **must** be respectful of disagreement, hear, and acknowledge other's experiences and perspectives.

That said, this is a course in science. You are entitled to your own opinions, you are not entitled to your own facts. I welcome a vigorous discussion. I welcome challenging accepted facts. Challenges, however, have to be backed up with data. This is *not* a class on rhetoric.

These challenges cannot be disruptive to the learning of others in the class. I reserve the right to stop a discussion if it is monopolizing class time and move it to my office hours (if no other students require office hours).

VIII. University Policies:

Students with Disabilities: It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can

be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

<http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf>

Religious Holy Days: If a student desires to be excused from class, assignment, or a test to participate in activities associated with a religious holy day, then the student must notify the instructor ahead of time of each scheduled class that he/she will miss for religious reasons. In such cases, the student will be required to take the test or submit the assignment early—unless there are good reasons for not being able to do so and the instructor has agreed to those reasons.

Visitors in the Classroom: Unannounced visitors to the classroom must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage occasional visiting of classes by responsible persons.

College can be tough. Stress-levels (self-reported) in College students is at the highest since 1966 (CIRP, 2010). My door is open.

[SHSU offers counseling from 8-5 MThF, 8-7 TuW. \(369\) 294-1720 or stop by to make an appointment.](#)

X. Course Schedule: (*Subject to change*)

Week 1 Jan 17-19	What even is Historical Geology?	Ch. 1	
Week 2 Jan 22-26	Rock Cycle, Foundations of Geology		
Week 3 Jan 29-Feb 2	“Soft Rocks” Introduction to the fossil record	Ch. 2	
Week 4 Feb 5-9	Geologic Time	Ch. 6	
Week 5 Feb 12-16	Evolution	Ch. 7	Exam 1 (12/13)
Week 6 Feb 19-23	Evolution 2	Ch. 5	
Week 7 Feb 26-Mar 2	Plate Tectonics	Ch. 8	
Week 8 Mar 5-9	Climate	Ch. 20	Exam 2 (8/9) ?
Spring Break			
Week 9 Mar 19-23	Formation of Earth, Hadean, Archean	Ch. 11	Exam 2 (22/23) ? Timescale Quiz?
Week 10 Mar 26-30	Proterozoic Snowball Earth	Ch. 12	
Week 11 Apr 2-6	Paleozoic	Ch. 13-14	
Week 12 Apr 9-13	Paleozoic 2	Ch. 15	Exam 3 (9/10)
Week 13 Apr 16-20	Mesozoic	Ch. 16, 17	
Week 14 Apr 23-27	End Cretaceous and the Cenozoic	Ch. 18, 20	
Week 15 Apr 30-May 4	Anthropocene	Ch. 19	

Cumulative Final Exam

