

Earth History and Evolution SIO 12
Fall-2014
MWF 11:00-11:50
Center Hall 113

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Office Hours: Mon. 12:00-12:50PM or by
appointment.

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Texts:

Required text: None. Exams will be based on lecture material and weekly assigned readings, videos, websites and homework assignments. Required reading etc. will be assigned throughout the quarter from publically available online resources.

Website: <http://ted.ucsd.edu>

Who should take this course? The course is designed as an introductory course for non-majors. The course will describe how and why we have come to our current understanding of the Earth and organisms that inhabit it. We'll expect you to be able to understand and communicate the logical underpinnings of the major paradigms in Earth Sciences today including: plate tectonics, geologic time, evolution of life, and global environmental change.

There are 2 basic components to this course:

- 1) Physical and evolutionary processes – the origin and composition of Earth and the principle processes that have shaped the Earth, and life on Earth, from 4.6 billion years ago to the present day.
- 2) Earth History– the origin and evolutionary history of life on Earth, including evolutionary processes and mass extinctions, within the context of major geologic and climatic developments.

Course requirements, exams and grading: You are **required to attend and participate** in all class meetings. Exams will cover material presented in lecture and assigned readings/web resources. You will not be able to succeed in this class if you don't attend class meetings regularly.

Your grade in the class will be determined by the following:

Midterm exam #1:	25%
Midterm exam #2:	25%
Final exam (comprehensive):	25%
Homework Assignments:	15%
Pop quizzes	10%

Exams are multiple choice and true/false. Scantrons are provided. Assignments are due in class on the due date. Late assignments will be accepted but reduced by 1 letter grade per week overdue.

COURSE OUTLINE

PHYSICAL AND EVOLUTIONARY PROCESSES

Oct 3 F Introduction: The Earth System

Our place in the Universe

Oct 6-10 M Beginnings: The Big Bang
 W Formation of the Elements and our Solar System
 F Formation of Planet Earth

Physical Evolution of Early Earth

Oct 13-17 M How did we come to have a layered planet?
 W The core and Earth's magnetic field
 F Earth's Surface - Continents, Ocean, Atmosphere

Homework #1 due Friday

Our Dynamic Planet

Oct 20-24 M Plate Tectonics: The basics of the theory
 W Plate Tectonics: Key evidence
 F The Rock Cycle: A Plate Tectonic Perspective

The Geologic Record of Earth History

Oct 27-31 M Deep Time: How old is Earth?
 W **Midterm Exam #1** (Through the rock cycle)
 F Rocks, Fossils and Time

TBD Exam Review Sessions Monday and Tuesday

Evolution of Life

Nov 3- 7 M Earth's Climate through Time
 W Evolution: Theory and supporting evidence
 F Evolution: Changes in Diversity through Time

Homework #2 Due Friday

A CHRONOLOGY OF EARTH HISTORY

Nov 10-14	M	Picking up the Story: Origin of Life
	W	Atmospheric oxygen and complex life
	F	Paleozoic: The Explosion of Life
Nov 17-21	M	Paleozoic: From backbones to four limbs
	W	Paleozoic: The giants before the dinosaurs
	F	Mass Extinctions: The Big One!
		TBD Exam Review Sessions Thursday and Friday
Nov 24-28	M	Midterm Exam #2
	W	Midterm recovery day- No class
	F	No Class: Thanksgiving Holiday
Dec 1-5	M	Mesozoic: Age of Reptiles
	W	The Extinction of the Dinosaurs/Rise of Mammals
	F	Cenozoic: The age of Mammals
		Homework #3 Due Friday
Dec 8-12	M	Evolution of Mammals
	W	Primate and Human Evolution
	F	Humans and Global Change
		Exam Review TBD
Dec 16	Tues	Final Exam 11:30am - 2:30pm