

Syllabus

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Instructor Information

Enabled: Statistics Tracking

Instructor Contact Information: Dr. Mark D. Uhen; Office location, 277A Research Hall; Office Hours, 10:30-11:30 Mondays or by appointment; email: muhen@gmu.edu; phone; 703-993-5264.

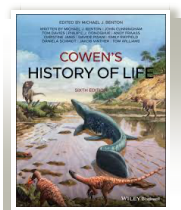
Office Hours will be held via Zoom:

<https://gmu.zoom.us/j/93885136330>



History of Life

Enabled: Statistics Tracking



Title	History of Life
Author	Richard Cohen
ISBN	9781119482215
Publisher	Wiley
Binding	Available new, used, or digital
Type	Print
Price	\$38.75
Required	



GEOL 134: Evolution & Extinction

Enabled: Statistics Tracking

GEOL 134: Evolution & Extinction

STUDENT RESPONSIBILITIES

The course will be delivered using Blackboard Collaborate. To access lectures, click Collaborate, then Course Room, then Join Course Room.

Lectures are generally recorded. To access recorded lectures, click Collaborate, then click on the three lines in the upper left corner. The recordings are listed there.

Students are expected to have read the syllabus and be familiar with expectations, due dates for assignments, and dates and times for quizzes and exams. The syllabus will be posted on the Blackboard system and students are expected to pay attention to any changes that are made over the course of the semester.

Group study and note taking: Students in the class will be divided into 4 groups. One group will be responsible for posting notes from lecture to the class Lecture Notes Blackboard wiki before the next class period. All members of each group will be expected to contribute. Students are also encouraged to use their group to study for quizzes and exams. Additional assignments may also involve group activity.

Communication: Students are expected to check their Mason email and the Blackboard system regularly for information about the course. Students are expected to have read the syllabus and be familiar with expectations, due dates for assignments, and dates and times for quizzes and exams. The syllabus, including the schedule is posted on Blackboard and students are expected to pay attention to any changes that are made over the course of the

semester. Failure to be aware of information posted to a student's Mason email account or on Blackboard is not a valid excuse for missing assignments, assignment instructions, tests, presentations or student responsibilities of any kind.

This course operates under the rules of the George Mason University Honor System and Code. Please be familiar with the code. Quizzes and exams are closed book and your answers must be your own.

Students are expected to be respectful of the instructor and each other during class. Demonstrate that respect by please, not talking out of turn during class, turning off your cell phone and instant messaging during class, and trying not to disturb class if you enter late or leave early.

If you are a student with a disability and you think that you need academic accommodations, contact the Office of Disability Services at 703-993-2472 or ods@gmu.edu immediately if you have not already done so. All academic accommodations must be arranged through that office. You must then bring the accommodation recommendations to your instructor(s) immediately.

LEARNING OBJECTIVES

Critical Thinking: Develop your ability to comprehend and analyze scientific concepts, and to critically evaluate scientific ideas.

Topical Comprehension: Give you a basic understanding of: this history of Earth, the history of life on Earth, and how geological processes interact with biological processes over the history of the earth.

Scientific Communication: Develop your skills in communicating scientific ideas in a clear and concise manner that demonstrates comprehension of scientific topics.

GRADING

Graded items will be presented primarily in the Recitation section over the course of the semester. These graded items will consist of: quizzes, written assignments, discussions, and the Virtual Museum exhibits. Virtual Museum exhibits are due weekly, usually on Mondays. You can find these tasks under the Wiki tab, and due dates for them are found on the Calendar for the course. Two regular exams will be given during the lecture period plus a final exam during the scheduled final exam period. The final exam is cumulative. Your grade will be calculated as follows: Participation: 5%, Virtual Museum: 20%, Quizzes + Assignments: 20% Exam 1 + Exam 2: 35%, Final Exam: 20%.

Quizzes and assignments will be graded on a scale from 1-10. The lowest of your quizzes + assignments will be dropped from the grade calculation. If you miss a quiz or fail to hand in an assignment, you will receive a zero for that quiz or assignment. Assignments turned in late will be graded 10% lower for each day that they are late. Assignments turned in more than 1 week after the due date will receive a zero. Do not expect that a make-up exam will be given if you miss an exam. If classes (or just this class) are cancelled on the day of an exam, the exam will be given on the next scheduled class day when classes are in session.

General grade scale: A: 90-100 pts; B: 80-89 pts; C: 70-79 pts; D: 60-79 pts; F: 0-59 points.

Assignments must be turned in electronically via Blackboard. Written assignments must be submitted in either: plain text (.txt), Word (.doc or docx), or PDF (.pdf) formats. **File names for each assignment should follow this format: Assignment X Lastname.doc. Where X is the assignment number and Lastname is your last name.** Failure to use this format may result in not receiving a grade in a timely fashion.

LESSONS

Introduction & Origin of the Earth

Reading: *Origin and Evolution of Earth*, Question 1, pp. 7-18

Note Taking Group 1

Fossil of the Day: *Mammuthus*

<https://en.wikipedia.org/wiki/Mammoth>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=43266

<http://www.earthtimes.org/scitech/yuka-ice-age-elephant-mammuthus-primigenius/1914/>

January 22, 2025

09:30 AM - 10:20 AM

Origins and deep time

Reading: *Origin and Evolution of Earth*, Question 2, pp. 18-27

Note Taking Group 3

Fossil of the Day: *Pikaia*

<https://en.wikipedia.org/wiki/Pikaia>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=34105

<https://burgess-shale.rom.on.ca/en/fossil-gallery/view-species.php?id=101&ref=i&>

January 24, 2025

09:30 AM - 10:20 AM

Geologic Time

Reading: [Understanding Geologic Time](#)

Note Taking Group 2

Video on absolute dating: https://www.youtube.com/watch?v=8QnsA_1pEd8

Fossil of the Day: *Triceratops*

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=38862

<https://en.wikipedia.org/wiki/Triceratops>

https://www.si.edu/object/triceratops-horridus-marsh-1889:nmnhpaleobiology_3383580

January 27, 2025

09:30 AM - 10:20 AM

Sediments & Sedimentary Rocks

Reading: [Sedimentary Rocks](#)

Note Taking Group 4

Extra Videos:

[Rock Cycle](#)

[Sedimentary Rocks](#)

[Earth's inner structure](#)

[Plate Tectonics](#)

Fossil of the Day: *Daimonelix* (trace fossil from *Palaeocaster*)

<https://en.wikipedia.org/wiki/Palaeocaster>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=209187

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=41553

https://www.youtube.com/watch?v=tdfFoSC8_7k

January 29, 2025

09:30 AM - 10:20 AM

Geological and Biological processes

Reading: *Origin and Evolution of Earth*, Question 8, pp. 84-94

Note Taking Group 2

Fossil of the Day: *Dunkleosteus*

<https://en.wikipedia.org/wiki/Dunkleosteus>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=34328

<https://www.cmnh.org/dunk>

January 31, 2025

09:30 AM - 10:20 AM

Origin of Life & Precambrian Life

Reading: *Origin and Evolution of Earth*, Question 3, pp. 27-34

Note Taking Group 1

Fossil of the Day: *Titanoboa*

<https://en.wikipedia.org/wiki/Titanoboa>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=179038

<https://www.smithsonianmag.com/science-nature/how-titanoboa-the-40-foot-long-snake-was-found-115791429/>

February 3, 2025

09:30 AM - 10:20 AM

Early Paleozoic earth history

Reading: [Paleozoic](#) ([Cambrian](#), [Ordovician](#), [Silurian](#), [Devonian](#))

Note Taking Group 3

Fossil of the Day: *Uintatherium*

<https://en.wikipedia.org/wiki/Uintatherium>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=40606

February 5, 2025

09:30 AM - 10:20 AM

Evolution

Reading:

http://evolution.berkeley.edu/evolibrary/article/0_0_0/evo_02

Note Taking Group 1

Fossil of the Day: *Mesosaurus*

<https://en.wikipedia.org/wiki/Mesosaurus>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=36324

February 7, 2025**09:30 AM - 10:20 AM****Late Paleozoic Earth History**Reading: [Paleozoic](#) ([Carboniferous](#), [Permian](#))

Note Taking Group 4

Fossil of the Day: *Tiktaalik*<https://en.wikipedia.org/wiki/Tiktaalik>https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=77132<https://www.youtube.com/watch?v=yvDQCa7rlel>**February 10, 2025****09:30 AM - 10:20 AM****Colonial Life**

Reading: Cowen, Chapters 4 & 5

Note Taking Group 2

Fossil of the Day: *Hydrodamalis gigas*https://en.wikipedia.org/wiki/Steller%27s_sea_cowhttps://paleobiodb.org/classic/basicTaxonInfo?taxon_no=53136https://animaldiversity.org/accounts/Hydrodamalis_gigas/**February 12, 2025****09:30 AM - 10:20 AM****Exam 1 Review**

Reading: Review Exam 1 readings and notes

Note Taking Group: 3

February 14, 2025**09:30 AM - 10:20 AM****Exam 1**

Reading: Review Exam 1 readings and notes

February 17, 2025**09:30 AM - 10:20 AM****Mesozoic earth history**Reading: [Mesozoic](#) ([Triassic](#), [Jurassic](#), [Cretaceous](#))

Note Taking Group 4

Fossil of the Day: *Carcharocles megalodon*<https://en.wikipedia.org/wiki/Megalodon>https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=202672<https://extinctmonsters.net/2013/09/09/the-calvert-marine-museums-big-foam-shark/>**February 19, 2025****09:30 AM - 10:20 AM****Marine to Terrestrial transitions (and vice versa)**

Reading: Read [The Origin of Tetrapods](#) and [The Evolution of Whales](#) on the Understanding Evolution website; Cowen Chapter 8

Note Taking Group 2

Fossil of the Day: *Odontochelys*

<https://en.wikipedia.org/wiki/Odontochelys>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=137151

<https://www.sciencemag.org/news/2008/11/sea-change-turtle-origins>

February 21, 2025

09:30 AM - 10:20 AM

Brachiopoda

Reading: Cowen, Chapter 5

Note Taking Group 1

Fossil of the Day: *Morganucodon*

<https://en.wikipedia.org/wiki/Morganucodon>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=39753

https://evolution.berkeley.edu/evolibrary/news/190502_mammals_chewing

February 24, 2025

09:30 AM - 10:20 AM

Fossils and Fossilization

Reading: <http://www.ucmp.berkeley.edu/paleo/fossilsarchive/>

Note Taking Group 3

Fossil of the Day: *Machimosaurus*

<https://en.wikipedia.org/wiki/Machimosaurus>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=38341

<https://www.nationalgeographic.com/news/2016/01/160111-ancient-crocodile-marine-largest-paleontology/>

February 26, 2025

09:30 AM - 10:20 AM

Recovery from mass extinctions

Reading: [How to survive a mass extinction](#)

Note Taking Group 1

Fossil of the Day: *Diplocaulus*

<https://en.wikipedia.org/wiki/Diplocaulus>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=37264

February 28, 2025

09:30 AM - 10:20 AM

Mesozoic Life

Reading:

Note Taking Group 4

Fossil of the Day: *Brontosaurus*

<https://en.wikipedia.org/wiki/Brontosaurus>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=52983

<https://www.scientificamerican.com/article/the-brontosaurus-is-back1/>

March 3, 2025

09:30 AM - 10:20 AM

Molluscs

Reading: Cowne, Chapter

5; <http://www.ucmp.berkeley.edu/taxa/inverts/mollusca/mollusca.php>

Note Taking Group 2

Fossil of the Day: *Campanile giganteum*. Links here:

https://en.wikipedia.org/wiki/Campanile_giganteum

<http://www.thefossilforum.com/index.php?/topic/83264-discovery-and-preparation-of-campanile-giganteum-from-lutetian-of-fleury-la-rivi%C3%A8re-france/>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=107040

March 5, 2025

09:30 AM - 10:20 AM

Evolution and Society

Reading: *Science, Evolution, and Creationism*

Note Taking Group 4

Fossil of the Day: *Basilosaurus*

<https://en.wikipedia.org/wiki/Basilosaurus>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=36681

<https://statesymbolsusa.org/symbol/alabama/state-dinosaur-or-fossil/basilosaurus-cetoides>

March 7, 2025

09:30 PM - 10:20 PM

Echinoderms

Reading: Cowen, Chapter

5; <http://www.ucmp.berkeley.edu/echinodermata/echinocy.html>

Note Taking Group 3

Fossil of the Day: Edrioasteroidea: *Isorophus cincinnatiensis*

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=30777

<https://www.myfossil.org/featured-fossil-edrioasteroids-of-cincinnati/>

<http://www.ordovicianatlas.org/atlas/echinodermata/edrioasteroidea/isorophida/isorophidae/isorophus/>

March 17, 2025

09:30 AM - 10:30 AM

Cenozoic earth history

Reading: [Cenozoic](#) (Paleogene, Neogene)

Note Taking Group 1

Fossil of the Day: *Coryphodon*

<https://en.wikipedia.org/wiki/Coryphodon>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=40574

<https://lemur.duke.edu/fossil-fridays-coryphodon/>

March 19, 2025

09:30 AM - 10:20 AM

Arthropods

Reading: Cowen, Chapter

5; <http://evolution.berkeley.edu/evolibrary/article/arthropodstory>.

Note Taking Group 2

Fossil of the Day: *Anomalocaris*

<https://en.wikipedia.org/wiki/Anomalocaris>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=7370

<https://www.youtube.com/watch?v=ice47loNmsc>

March 21, 2025

09:30 AM - 10:20 AM

Evolution of Earth's climate

Origin and Evolution of Earth, Question 7, pp. 71-86

Note Taking Group 3

Fossil of the Day: *Notharctus*

<https://en.wikipedia.org/wiki/Notharctus>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=40764

<https://www.thirteen.org/programs/your-inner-fish/your-inner-fish-program-human-hand-gift-ancient-primates/>

March 24, 2025

09:30 AM - 10:20 AM

Vertebrates (through early tetrapods)

Reading: Cowen, Chapter 9

Note Taking Group 4

Fossil of the Day: *Eusthenopteron*

<https://en.wikipedia.org/wiki/Eusthenopteron>

https://paleobiodb.org/classic/basicTaxonInfo?taxon_no=34918

http://digimorph.org/specimens/Eusthenopteron_foordi/

March 26, 2025

09:30 AM - 10:20 AM

Exam 2 Review

Reading: Review Exam 2 readings and notes

Note Taking Group 1

March 28, 2025
09:30 AM - 10:20 AM
Exam 2

Reading: Review Exam 2 readings and notes

March 31, 2025
09:30 AM - 10:20 AM
Vertebrates (Amniota)

Reading: Cowen, Chapter 9

Note Taking Group 2
Fossil of the Day: *Brachyrhinodon*
<https://en.wikipedia.org/wiki/Brachyrhinodon>
https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=37813

April 2, 2025
09:30 AM - 10:20 AM
Plate Tectonics & Evolution

Reading: Prothero, Chapter 9; [Biogeography: Wallace and Wegener](#)

Note Taking Group 4
Fossil of the Day: *Mesosaurus*
<https://en.wikipedia.org/wiki/Mesosaurus>
https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=36324

April 4, 2025
09:30 AM - 10:20 AM
Dinosauria

Reading: Cowen, Chapter 12 & 16

Note Taking Group 3
Fossil of the Day: *Allosaurus*
<https://en.wikipedia.org/wiki/Allosaurus>
https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=38590
<https://www.youtube.com/watch?v=YSGdowqESaQ>

April 7, 2025
09:30 AM - 10:20 AM
Mammalia

Reading: Cowen, Chapter 15 & 17

Note Taking Group 1
Fossil of the Day: *Morganucodon*
<https://en.wikipedia.org/wiki/Morganucodon>
https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=39753
https://evolution.berkeley.edu/evolibrary/news/190502_mammals_chewing

April 9, 2025

09:30 AM - 10:20 AM

Nature and quirks of the fossil record

Reading: Tahnukos 2009

Note Taking Group 3

Fossil of the Day: *Squalodon*

<https://en.wikipedia.org/wiki/Squalodon>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=36852

April 11, 2025

09:30 AM - 10:20 AM

Mammalia (continued)

Reading:

Note Taking Group 2

Fossil of the Day: *Uintatherium*

<https://en.wikipedia.org/wiki/Uintatherium>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=40606

April 14, 2025

09:30 AM - 10:20 AM

Mammalia (continued)

Reading: Uhen 2007

Note Taking Group 4

Fossil of the Day: *Icaronycteris*

<https://en.wikipedia.org/wiki/Icaronycteris>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=40632

April 16, 2025

09:30 AM - 10:20 AM

Taphonomy

Reading: Behrensmeyer 1984

Note Taking Group 2

Fossil of the Day: *Daimonelix* (trace fossil from *Palaeocaster*)

<https://en.wikipedia.org/wiki/Palaeocaster>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=209187

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=41553

https://www.youtube.com/watch?v=tdfFoSC8_7k

April 18, 2025

09:30 AM - 10:20 AM

Cenozoic Marine Radiations

Reading: Uhen 2007

Note Taking Group 1

Fossil of the Day: *Enaliarctos*

<https://en.wikipedia.org/wiki/Enaliarctos>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=36916

April 21, 2025

09:30 AM - 10:20 AM

Paleobotany

Reading: <http://www.ucmp.berkeley.edu/IB181/VPL/Dir.html>

To be clear, don't do the labs at the link, just read the background information about plants and plant evolution.

Note Taking Group 3

Fossil of the Day: *Archaeopteris*

<https://en.wikipedia.org/wiki/Archaeopteris>

https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=249678

April 23, 2025

09:30 AM - 10:20 AM

Human Evolution

Note Taking Group 4

Fossil of the Day: *Homo*

https://en.wikipedia.org/wiki/List_of_human_evolution_fossils

April 25, 2025

09:30 AM - 10:20 AM

Human Evolution

Reading: [Human Evolution Evidence](#); Cowen, Chapters 19 & 20

Note Taking Group 1

Fossil of the Day: *Homo floresiensis*

https://en.wikipedia.org/wiki/List_of_human_evolution_fossils

<https://humanorigins.si.edu/evidence/human-fossils/species/homo-floresiensis>

April 28, 2025

09:30 AM - 10:20 AM

Pleistocene and Human Impacts

Reading: [Pleistocene](#), Barnosky et al. 2011, *Origin and Evolution of Earth*, Question 7, pp. 71-84; Cowen, Chapter 21

Note Taking Group 2Fossil of the Day: *Mammuthus*<https://en.wikipedia.org/wiki/Mammoth>https://www.paleobiodb.org/classic/basicTaxonInfo?taxon_no=43266<http://www.earthtimes.org/scitech/yuka-ice-age-elephant-mammuthus-primigenius/1914/>**April 30, 2025****09:30 AM - 10:20 AM****TBA****Note Taking Group 3****May 2, 2025****09:00 AM - 10:20 AM****Final Exam Review**

Reading: Review all readings and notes

Note Taking Group 4**May 5, 2025****09:30 AM - 10:20 AM****Final Exam**

Reading: Review all previous exams, readings, and notes.

The Exam will remain open from 7:30am to 7:30pm on Monday, May 12, 2025. You will have 2 hours 45 minutes to complete the exam. You must be done by 7:30pm, so plan accordingly. I will be present in the Course Room in Collaborate from 7:30 am to 10:15 am, the scheduled time for the exam if you have any questions.

May 12, 2025**07:30 AM - 10:15 AM**