

GEOS 170A1 Earth: From Birth to Death? Section 001, Spring 2020

Instructors: Dr. Jessica Kapp and Dr. Marcus Lofverstrom

Offices: Gould Simpson 324 (Kapp); Gould Simpson 360 (Lofverstrom)

Office Hours: By appointment – email instructor to set a time

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Teaching Assistant: Sebastian Jimenez Rodriguez (jsjimenezr@email.arizona.edu)

Preceptor: Kobe Jamison – kjamison1@email.arizona.edu

(TA and preceptor office hours/review session times posted on d2l)

Lecture meets M,W,F from 12:00 – 12:50 p.m. in ENRB N120

REQUIRED Course materials:

Lecture Tutorials for Earth Science, by *Kortz and Smay* – available in the U of A bookstore.

Turning Technologies Clicker - available in the U of A bookstore.

Lined paper or notebook, pens/pencils.

- Attendance and participation are the **only** way to ensure success in this course.
- Please bring Lecture Tutorials workbook (see above), clicker, and paper/pen to every class.
- Distracting behavior won't be tolerated. No cell phone/electronics use in class.
- **No make-ups – we drop several grades so you can miss some class/quizzes/assignments.**
- You cannot earn participation points if you are not in class. Period.
- Any form of cheating will be reported to the dean of students office, and a penalty enforced.
- ***It is your responsibility to be here for all exams.*** We drop one exam grade.
- There are no make-ups offered for travel, family engagements, or religious/personal reasons.
- We will offer make-ups for dean-approved travel with a dean's excuse, or for serious illnesses that require doctor/hospital visits only (with documentation).
- If you are struggling for any reason, it is your responsibility to contact the instructor immediately to discuss options.

If you have questions outside of class, please follow the 3 steps below, in this order:

1 – Check the syllabus and d2l – the information is likely there for you.

2 – Email the TA– he can help with most questions.

3 – Email a professor – if your concerns are not easily addressed by the syllabus or a TA, feel free to email us directly to set up an appointment. We are happy to help with content questions, grade questions, and personal problems that are interfering with your ability to attend class. We are always happy to talk about science, or becoming a geo major.

Course objectives and learning outcomes: By the end of this course students should be able to explain the origin of Earth and its atmosphere/oceans, how earth processes (e.g., plate tectonics, rock formation/change/breakdown, landslides and floods, atmospheric/ocean circulation, the greenhouse effect) relate to basic scientific principles such as density and thermodynamics; describe earth processes and how they shape earth's surface; link earth processes to one another; explain how the greenhouse effect works and how it is related to global warming; describe how earth processes/geological hazards affect humans/society; list factors that contribute to climate and climate change; discuss the future of planet earth based on current trends in population, energy use, and climate change.

Date	Class Topic	Quiz (due) Online Assign (due)	In-class Tutorials/Activities
W 1/15	1. Intro – The Earth System		
F 1/17	2. Origin of the Universe		Doppler Shift; Expansion of the Universe
M 1/20	No Class - MLKing Jr. Holiday		
W 1/22	3. Our Solar System	Q1	Rocky Inner Planets v. Gaseous Outer Planets, p. 125; Planetary positions p. 121
F 1/24	4. The Sun and Seasons		The cause of seasons p. 111
M 1/27	5. Earth's Layers/Density		Outer layers of Earth p. 21
W 1/29	6. Origin of oceans/atmosphere	Q2	Origin of oceans and atmosphere
F 1/31	7. The Atmosphere		Layers of the atmosphere, p. 163; Simple atmo circ. p. 165
M 2/3	8. Minerals and Rocks	A1	Rock Categories p. 35, The Rock Cycle p.37
W 2/5	9. Glaciers and Ice Sheets	Q3	Glacier movement p. 83; The glacier budget p. 85
F 2/7	10. Plate Tectonics I		Tec Plates Boundaries p. 5, Seafloor ages p. 7
M 2/10	11. Plate Tectonics II		Divergent Boundary Features, p.11, Subduction Features p.15
W 2/12	12. Plate Tectonics III	Q4	Movement at Convergent Plate Boundaries, p.17, Transform Boundaries
F 2/14	No class – optional review		
M 2/17	Exam 1 in class	A2	
W 2/19	13. Earthquakes		Loc of EQ p. 63, Outer Core p.23
F 2/21	14. Tsunamis		Tsunamis p. 65
M 2/24	15. Melting/Thermodyn		Magma Source Depth p. 25
W 2/26	16. Volcanoes/Hot Spots	Q5	Volcano types p. 43; Hot Spots p. 27
F 2/28	17. Volcanism and climate		How volcanoes affect climate
M 3/2	18. Weathering/Sediments	A3	Weathering p. 45, Sediments and Sedimentary Rocks, p. 49
W 3/4	19. Landslides	Q6	Landslides, p. 67
F 3/6	20. Floods		Water Table, p.79, Flood Curves p. 71
M 3/9-13	No Classes - Spring Break		
M 3/16	21. Shaping a Planet's Surface		Earth's surface features p. 107; Planet surface features p. 137
W 3/18	22. Groundwater	Q7	Groundwater p. 75, Groundwater Contamination p. 81
F 3/20	23. Oceans		Ocean surface circulation p. 145; Coriolis Effect
M 3/23	24. Oceans II		Ocean layers p. 149; Thermohaline circulation
W 3/25	25. Coastlines and weathering	Q8	Longshore currents p. 151
F 3/27	No class – optional review		
M 3/30	EXAM 2	A4	
W 4/1	26. The Carbon Cycle		Climate Change and CO ₂ , p.171
F 4/3	27. Atmospheric CO ₂ and the Greenhouse Effect		How the Greenhouse Effect Works, p.173, The Greenhouse Effect and Global Warming, p.175
M 4/6	28. Atmospheric circulation		Layers of the Atmosphere p.163; Simple Atmospheric Circ p. 165
W 4/8	29. Population growth and resources	Q9	Population growth
F 4/10	30. The Ozone Hole		Greenhouse Effect and the Ozone Hole, p. 177
M 4/13	31. Alternative Energy		Consequences of Global Warming, p. 179, Alternative energy sources p. 181
W 4/15	32. Snow and Ice	Q10	Oxygen Isotopes; Albedo
F 4/17	33. Interaction of atmosphere, ice, and oceans		

M 4/20	34. Deserts		Deserts
W 4/22	35. Modeling climate change	Q11	Modeling parameters and how climate models work
F 4/24	36. Ice Ages		Milankovitch cycles
M 4/27	37. Evolution		Natural Selection
W 4/29	38. Mass Extinctions	Q12	Scientific Hypotheses of Dinosaur Extinction, p.87
F 5/1	No class – optional review		
M 5/4	EXAM 3	A5	
W 5/6	Review for final exam		
W 5/13	Final Exam 10:30 – 12:30		

Class policies and conduct

We want all students to be able to engage in learning in a *distraction free* environment. The easiest way to ensure that happens for you and everyone else is to do these few things:

- 1) Arrive on time and stay the full class period.
- 2) Do not use any electronic devices in class (cell phones, computers, tablets, etc.).
- 3) Participate in class fully and productively.

If you are not prepared to do these three simple things, there is a solution - find another class to take. If you choose to take Geos 170A1, you acknowledge the following:

- If you are in any way disruptive, you will be asked to leave. The university defines disruptive behavior as *any conduct that interferes with or obstructs the teaching or learning process in the context of a classroom or educational setting*. This includes persistent tardiness or leaving early, talking/whispering incessantly during class, belligerence when confronted in class, cell phone use, watching videos, or using a computer or other device.
- Computers, cell phones, and any other electronic devices are prohibited. If we see you using them, we will ask you to put them away or leave as a courtesy to other students in the class. Refusal can result in loss of participation points for the day, being asked to leave class, or being dropped from the class (repeat offenders).
- Please talk to the instructor if you have disability-related reasons for needing to use a computer or other electronic device. We will ask you to sit in a designated section.
- Attendance in all lectures is strongly recommended and will greatly benefit your learning!
- WE RESERVE THE RIGHT TO ASK YOU TO LEAVE IF YOU ARE DISRUPTIVE IN ANY WAY! Thanks for your cooperation.

In-class tutorials and activities

- We will do in class activities and/or tutorials every day. Please bring your tutorial workbook, and paper/writing utensil to every lecture.
- Tutorials are not turned in or graded but are your study guide for exams. It is imperative that you put your best effort into your tutorials.
- We will do participation (clicker questions) in every class, which will be counted for participation credit. If you are not in class, you cannot earn these points, period.

Clickers (Participation)

- We count 30 participation scores. There are 37 lectures in which we will do clickers. That means you can miss up to 7 lectures and it will not affect your participation score. We suggest you use these wisely, for illness, travel, religious reasons, family trips, etc. as these clicker points cannot be made up and are not awarded for excused absences.
- We offer **no make-ups** on missed participation points for any reason. An excused absence does NOT mean you get participation points.

- Only you can click in for you. *If someone else uses your clicker to submit answers for you, both you and the other person will be reported for violating the code of academic integrity and we will pursue sanctions.*
- To register your clicker, you will need the clicker ID# (found on the back of the clicker itself) and a subscription # (comes with your new clicker when you purchase it from the bookstore). Register on d2l by clicking on UA Tools at the top, scrolling down to Clickers, then following the instructions. If you got your clicker another way, you will need to pay for a subscription with Turning Technologies by logging in to d2l, clicking UA Tools/Clickers and following the instructions to purchase a subscription. Your participation points will not be logged if you do not register your clicker. For help, visit clickers.arizona.edu.

Assignments

You will notice due dates for assignments on the schedule (listed in the third column, as A1, A2, etc). These assignments are online exercises that are turned in on d2l for a grade. They may include drawing/labeling diagrams, short answers, multiple choice, true/false, matching, and other types of questions. They are meant to be review of the material we have covered in class, and help you prepare for upcoming exams. We count your four best assignment grades and drop your one lowest. There are no make ups on assignments as you will have multiple days to complete them. You are encouraged to work with other students on these assignments, but you must submit answers in your own words. There is a difference between collaborating and cheating – if you are unsure about this distinction, please see an instructor or a TA to clarify. Cutting and pasting from the internet is considered cheating. *If you submit someone else's work as your own, or submit work for someone else, both you and the other person will be reported for violating the code of academic integrity and we will pursue the most severe sanction allowable, which may include failing the class. Turning in identical work is considered cheating.*

Quizzes

- All quizzes will be posted and completed on d2l under “quizzes.”
- Quiz questions are based on what we have covered in class the previous week.
- All quizzes will post on Fridays at 1:00 pm and are due the following Wednesday at 11:59 am (before class begins).
- There are no make ups on quizzes as you have five days to complete them, and we drop two quiz grades (12 quizzes total, 10 highest scores count).
- You may use your notes and posted class materials to complete quizzes.
- You will have two attempts at every quiz, and the highest score will automatically count.
- Quiz due dates are in column three of the schedule, listed as Q1, Q2, etc.

Exams

- Four exams will be given this semester (see schedule on page 2-3). Three are midterms and one is a cumulative final exam. You must be here for exams – do not travel!
- **Your three highest exam scores will count (i.e., we drop one exam grade). Yes, your final exam can be your dropped grade! The lowest score will automatically drop.**
- **THERE ARE NO MAKE-UPS on exams as we drop one exam grade.** The only exception is serious illness that requires a doctor/hospital visit (with documentation), or dean approved activities with a dean's excuse. You have one week from the scheduled exam date to take your make up if you have an approved excuse. All exams are returned after one week, and no more make ups are given for any reason.
- Once exam grades are posted on d2l you have one week to question or dispute your grade with the instructor. After one week, all grades stand.
- Once the semester ends, we will discard all exams and no grade changes will be made.

- Exams will draw heavily from tutorials, activities, quizzes, and assignments.
- Be sure to read and follow all instructions on the exam carefully.
- No books or notes are to be opened at any time during the exam.
- No phones, computers, headphones, or other electronic devices can be on/used during the exam period. Only your clickers can be out – they will be used on all exams.
- We will not give an exam prior to or after its scheduled time. Please plan ahead for all exams and plan your travel accordingly!
- ***IF WE CATCH YOU CHEATING IN ANY WAY ON AN EXAM YOU WILL BE REPORTED TO THE DEAN OF STUDENTS OFFICE AND WE WILL PURSUE SERIOUS SANCTIONS.***

Grading Philosophy

- We do not grade on a curve.
- We do not offer make-ups on any graded work as we drop several grades.
- You can check your grades on d2l any time, and we expect you to check your grades regularly and contact us with any questions or concerns.
- **If you have questions about a grade, please raise them within ONE WEEK of the grade being posted on d2l. After one week, grades will stand, and no changes will be made.**
- Grades will post to d2l within one week of completion of an assignment/exam.
- No extra credit opportunities will be given at the end of the semester, and no alternative assignments or work will be given to “boost” your grade.

Basis for Your Course Grade

Grades are weighted as follows:

Participation (clickers)	10% of overall grade (0.33% each, highest 30 count)
Quizzes	20% of overall grade (2% each, highest 10 count)
Online Assignments	30% of overall grade (7.5% each, highest 4 count)
<u>Exams</u>	<u>40% of overall grade (13.3% each, highest 3 count)</u>
Total possible	100%

Note: To get an A in the class you must earn at least 90%. No exceptions.

Your final grade for the course (3 units) is based on the following grand total scores:

≥90% = A ≥80% = B ≥70% = C ≥60% = D less than 60% = E

Important note: If you will not be able to complete the work, please drop or withdraw from the class and try again in a future semester. There will be no opportunity for incompletes, or alternatives or make up work after class has ended. The instructor will work with you to find solutions if you have a documented physical/mental health issue during the semester, but this must happen immediately upon issues arising, not at the end of the semester.

Seeking Help

The TA will hold office hours and preceptors may hold review sessions, and you can drop-in to these without an appointment. Days and times will be posted on d2l. Instructors meet with students by appointment - it is your responsibility to email an instructor to set up an appointment for help. Instructors are happy to meet with you by appointment to discuss any of your concerns.

Academic Integrity

<http://deanofstudents.arizona.edu/codeofacademicintegrity>

Please read the Code of Academic Integrity at the website provided above.

A student shall be guilty of violating the Code and be subject to penalties if he/she:

- a. Represents the work of others as his/her own.
- b. Uses or obtains unauthorized assistance in any academic work.
- c. Gives unauthorized assistance to another student.
- d. Modifies, without faculty approval, an examination, paper, record or report for the purpose of obtaining additional credit.
- e. Turns in work he/she completed with another students' name on it.
- f. Uses another student's clicker or has another student use their clicker for them.

Written assignments you submit for this course are to be strictly in your own words. Plagiarism is any attempt to present another person's work as your own, including words from a website. Do not cut and paste information from a website!

ALL cases of cheating will be referred to the Dean of Students and may result in failure of the class.

Students with Disabilities:

At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, you are welcome to let the instructor(s) know so that we can discuss options. You are also encouraged to contact Disability Resources (520) 621-3268 to explore reasonable accommodation. Please be aware that the accessible table and chairs in the classroom should remain available for students who find that standard classroom seating is not usable.

<https://drc.arizona.edu/>

Child Care Concerns and missing class:

Life and Work Connections offers assistance with childcare resources and referrals. Request a consultation by **email** or call (520) 621-1530. Sick and backup child care (SBUCP) provides access to temporary caregiver services at a significantly reduced cost.

https://lifework.arizona.edu/cc/sick_child_and_emergency_back_up_care_program

If you have a child who is not sick but needs to be with you during a class due to circumstances beyond your control, please feel free to bring them to class with you.

Other Sources of Help and Information

- The Department of Geosciences main office is room 208 Gould-Simpson, 621-6000.
- The Geosciences Department website is <http://www.geo.arizona.edu>.
- Think Tank offers free drop-in tutoring, review sessions, or private scheduled tutoring for a fee. See the website for details: <http://www.studentaffairs.arizona.edu/thinktank>

Policy on threatening behavior:

The University seeks to promote a safe environment where students and employees may participate in the educational process without compromising their health, safety or welfare. The Arizona Board of Regents' Student Code of Conduct, ABOR Policy 5-308, prohibits threats of physical harm to any member of the University community, including to one's self. Threatening behavior can harm and disrupt the University, its community and its families.

NOTICE: ALL CLASS POLICIES ARE SUBJECT TO CHANGE AT ANY TIME. STUDENTS WILL BE NOTIFIED OF ALL SIGNIFICANT CHANGES. CHECK D2L REGULARLY.