

Geology 100 (Section 3) HOW THE EARTH WORKS

Fall 2021 Syllabus



WHEN: August 23 – December 17, 2021

WHERE: Online course available via Canvas

Instructor: Aaron R. Wood
Department: Geological & Atmos. Sciences
Email: awood@iastate.edu
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Office hours: Mon (2:30 – 4:00 pm) walk-in or Webex
Tues (2:30 – 4:00 pm) walk-in or Webex

COURSE OVERVIEW

Mountains, volcanoes, earthquakes, and constantly-moving tectonic plates are all part of the dynamic Earth on which we live. As geologists, it is our job to ask and answer important questions about Earth and its geologic processes that impact our physical environment and its resources. In this class, students will learn how Earth works, what it is made of, and how geologists study Earth using the scientific process.

COURSE GOALS AND OBJECTIVES

After completing this course, students will:

- Have a thorough understanding of plate tectonics as the overarching theory explaining how the Earth works;
- Understand that Earth is a complex system of interacting rock, water, air, and life; and
- Know that the Earth is 4.6 billion years old and is constantly changing.

Specific learning objectives for this course include being able to explain:

- the differences between divergent, convergent, and transform plate boundaries
- the relationships between plate tectonic settings, volcano types, eruptive styles, and lava compositions
- the geochronological methods used to determine the age of the Earth, rocks, and geologic events
- the physical processes responsible for geological hazards and landforms.

STUDENT LEARNING

The semi-asynchronous online delivery of this course means you may work at your own pace within a given week. Course content, including recorded lectures, videos, additional reading, etc., will be posted within weekly modules on Canvas. So, in order to adequately prepare for exams, you will need to explore one module and complete module quizzes and assignments each week. Study guides will be provided to the class before each exam.

Estimated workload for this class is 8-12 hours per week. Above all, you are expected to self-motivate and actively manage your learning. As instructor, I am always available for questions and to support your efforts.

CANVAS

Course content, quizzes, assignments, gradebook, announcements, etc. will be available through the Canvas learning management system. All students registered in the course will automatically be enrolled into course Canvas page.

REQUIRED TEXTBOOK

Earth: An Introduction to Physical Geology by Tarbuck, Lutgens, and Tasa

Students will be able to access the required textbook via Canvas as part of the Iowa State University Immediate Access Program. More information on the Immediate Access Program can be found below.

COMMUNICATION WITH THE INSTRUCTOR

Email, discussion posts/replies, and Webex meetings will be the typical means of communication with me. Feel free to send me any questions, concerns, comments, or interesting articles, videos, comics, etc. that involve geology or science in general. When emailing me, make sure the subject line of your email includes "GEOL 100" to ensure I notice, read, and respond to your message. Any messages that do not include "GEOL 100" in the subject may be lost forever in the maelstrom that is my inbox.

GRADES

Your final grade will be based on 375 points, consisting of exams, lecture quizzes, and homework assignments. It is your responsibility to keep track of points in the Canvas gradebook and call any errors to my attention within two weeks of the posting of the relevant grade.

Any grade appeals made more than two weeks after the posting of the relevant grade will not be considered.

Exams (175 points total)

Exams in this class include three midterm exams (50 points each) and a comprehensive final exam (75 points) offered during the dates and times listed on the course schedule. Each exam will consist of multiple choice and short answer questions. Your lowest regular exam score (not the final!) will be dropped at the end of the course. Midterm exams will have a 75-minute timer whereas the final exam will have a 90-minute timer.

Students in the Ames area are required to take exams at one of the testing center locations on the Iowa State University campus. More information on the ISU testing center can be found on their website: <http://www.testcenter.iastate.edu/>.

No make-up exams will be offered unless the instructor is notified in advance (i.e., more than 24 hours before the exam deadline).

Lecture/reading quizzes (120 points total)

Each module of online content (i.e., lecture videos, readings, etc.) will be followed by a quiz worth 3 points to help students keep up with class content. In a typical week, three quizzes will be offered and consist of 3-5 questions that range in format from multiple choice to short answer questions. Each quiz will be available from 12:01 am Monday to 11:59 pm on the following Monday during the relevant week, giving students more than a week to complete the quizzes on their own schedule. Your two lowest quiz grades will be dropped at the end of the semester. **No late quizzes will be accepted.**

Homework assignments (80 points)

Homework will be assigned during 4 weeks of the semester. Each homework will be worth 15-25 points and require students to demonstrate their knowledge of course content in a more thorough way than allowed by the online quizzes. The format of the homework assignments will vary from week to week and may involve online research, math-based exercises, or short essays. **No late homework assignments will be accepted.**

Extra credit opportunities

Extra credit up to a **maximum of 10 points** may be earned towards the final course grade. You are strongly encouraged to pursue extra credit, because an additional 10 points is equal to a ~2.67% boost to your final grade. Extra credit opportunities will be announced on Canvas.

GRADING SCALE

Lower boundaries for letter grades are as follows:

A	92%	B+	86%	C+	76%	D+	66%	F	< 59%
A-	89%	B	82%	C	72%	D	62%		
		B-	79%	C-	69%	D-	59%		

IOWA STATE UNIVERSITY IMMEDIATE ACCESS PROGRAM

This course is enrolled in the Iowa State University Immediate Access Program. Immediate Access is a collaborative affordability initiative between the ISU Book Store, faculty, and publishers. Students that are enrolled in an Immediate Access course will receive access to all required digital course materials the first day of class and at a reduced cost compared to the national average. Students will be automatically charged on their u-bills for this digital content. The billing description on your u-bill will show the department and course number, followed by "IMMED ACCESS" and the last 4 digits of the billing ISBN. There is a tool on the navigation menu of your Canvas course called Immediate Access Course Materials. You will receive an email shortly before classes start that will instruct you on how to access the required digital course materials. You may not be able to access the digital content until the first day of class. For further questions about Immediate Access please email immediateaccess@iastate.edu.

Students who drop the course within the first 10 days of class will receive a refund on their u-bill (5 days for courses 8 weeks or shorter). You do not have to notify the bookstore if you drop the course. This is an automated process.

Students may choose to opt out of the program. Opting out does not mean you are dropping the course. It simply means you are choosing not to receive the digital content from the bookstore and you must find another way to acquire it in order to complete required homework assignments. Students have within the first 10 days of class to opt out and receive a refund to their u-bill (5 days for courses 8 weeks or shorter). Instructions on how to opt out will be emailed shortly before classes start.

ACADEMIC DISHONESTY

The class will follow Iowa State University's policy on academic dishonesty. Anyone suspected of academic dishonesty will be reported to the Dean of Students Office. Details can be found here: <http://www.dso.iastate.edu/ja/academic/misconduct.html>

ACCESSIBILITY STATEMENT

Iowa State University is committed to assuring that all educational activities are free from discrimination and Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information is available online at www.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services (1076 Student Services Building) is a unit in the Dean of Students Office.

HARASSMENT AND DISCRIMINATION

Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Inquiries regarding non-discrimination policies may be directed to Office of Equal Opportunity, 3410 Beardshear Hall, 515 Morrill Road, Ames, Iowa 50011, Tel. 515-294-7612, email eooffice@iastate.edu.

FREEDOM OF SPEECH AT ISU

Iowa State University supports and upholds the First Amendment protection of freedom of speech and the principle of academic freedom in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

INCLUSIVE, PROFESSIONALISM AND MUTUAL RESPECT STATEMENTS

Students are expected to treat the instructors and all other participants in the course with courtesy and respect. Students' comments to others should be factual, constructive, and free from harassing statements. Students are encouraged to disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities). It is the instructor's goal to promote an atmosphere of mutual respect in the classroom.

Overall, students are responsible for living the tenets established in ISU's Principles of Community. Visit ISU's Principles of Community website (<http://www.diversity.iastate.edu/principles-of-community>) for more information. Students are also responsible for being familiar with the University's student rules and policies. Visit the ISU Policy Library website (<http://www.policy.iastate.edu/>) for more information.

Iowa State University is committed to proactively facilitating the well-being of all students. We welcome and encourage students to contact the following on-campus services for assistance regarding their physical, intellectual, occupational, spiritual, environmental, financial, social, and/or emotional needs:

- Student Wellness call (515) 294-1099 or via website (<http://studentwellness.iastate.edu>);
- Thielen Student Health Center call (515) 294-5801 (24/7 Medical Advice) or via website (<http://www.cyclonehealth.org>);
- Student Counseling Services call (515) 294-5056 or via website (<https://counseling.iastate.edu>);

Students dealing with heightened feelings of sadness or hopelessness, thoughts of harm or suicide, or increased anxiety may contact the ISU Crisis Text Line (Text ISU to 741-741) or contact the ISU Police Dept. (515) 294-4428.

The instructors are committed to creating a course that is inclusive in its design. If you encounter barriers, please let the instructors know immediately so that we can determine if there is a design adjustment that can be made or if an accommodation might be needed to overcome the limitations of the design. We are always happy to consider creative solutions as long as they do not compromise the intent of the assessment or learning activity. You are also welcome to contact the Student Accessibility Services (515-294-7220) to begin this conversation or to establish accommodations for this or other courses. The instructors welcome feedback that will assist us in improving the usability and experience for all students. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester.

RELIGIOUS ACCOMMODATION

Iowa State University welcomes diversity of religious beliefs and practices, recognizing the contributions differing experiences and viewpoints can bring to the community. There may be times when an academic requirement conflicts with religious observances and practices. If that happens, students may request reasonable accommodation for religious practices. In all cases, you must put your request in writing. The instructor will review the situation in an effort to provide a reasonable accommodation when possible to do so without fundamentally altering a course. For students, you should first discuss the conflict and your requested accommodation with your professor at the earliest possible time. You or your instructor may also seek assistance from the Dean of Students Office at 515-294-1020 or the Office of Equal Opportunity at 515-294-7612.

CONTACT INFORMATION

If you are experiencing, or have experienced, a problem with any of the above issues at the university level, email academicissues@iastate.edu.

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FALL 2021 MODULE SCHEDULE AND READING ASSIGNMENTS

	Dates	General Topic	Textbook Reading Assignment
Week 1	Aug. 23-29	Introduction; Basics of Plate Tectonics	Chapters 1 and 2
Week 2	Aug. 30-Sept. 5	Minerals: Formation, characteristics, and uses	Chapter 3
Week 3	Sept. 6-12	Magma and Igneous Rocks	Chapter 4
Week 4	Sept. 13-19	Volcanoes	Chapter 5
Exam 1 (Weeks 1-4 content) September 20-22			
Week 5	Sept. 20-26	Weathering, Soils, and Sedimentary Rocks	Chapters 6 and 7
Week 6	Sept. 27-Oct. 3	Metamorphic Rocks	Chapter 8
Week 7	Oct. 4-10	Deformation and Mountain Building	Chapters 10 and 14
Week 8	Oct. 11-17	Geologic Time	Chapter 9
Exam 2 (Weeks 5-8 content) October 18-20			
Week 9	Oct. 18-24	Earthquakes	Chapter 11 and 12.2-3
Week 10	Oct. 25-31	Ocean Processes, Basins, and Coasts	Chapters 13.1, 13.3, 13.6 and 20
Week 11	Nov. 1-7	Streams and Flooding	Chapter 16
Exam 3 (Weeks 9-11 content) November 8-10			
Week 12	Nov. 8-14	Groundwater	Chapter 17
Week 13	Nov. 15-21	Glaciers	Chapter 18
Thanksgiving Break! November 22-26			
Week 14	Nov. 29-Dec. 5	Energy Resources	Chapter 23.1-23.4
Week 15	Dec. 6-12	Climate Change: Past, Present, and Future	Chapter 21
Final Exam (Cumulative, Weeks 1-15) December 13-15			