GEO 101 Physical Geology

Fall 2024 Syllabus

CRN 10745 **DATES** 24 September – 6 December 2024

SCHEDULE

Lecture: Tuesdays and Thursdays, 2:00 pm – 3:20 pm, CAT 61
Lab section 062: Wednesday, 4:00 pm – 5:50pm, PISB 204 (with Sophia)
Lab section 063: Thursday, 10:00am – 11:50am, PISB 204 (with Sophia)
Lab section 064: Tuesday, 9:00am – 10:50am, Randell 037A (with Faith)
Lab section 065: Thursday, 9:00am – 10:50am, Randell 037A (with Faith)

INSTRUCTOR

Dr. Loÿc Vanderkluysen, (215) 571-4673, loyc@drexel.edu
Office: PISB 322. Student Hours: Tuesdays, 10am-11am, or upon request

TEACHING ASSISTANT

Faith Echiejile (fe58@drexel.edu), sections 062 and 063, office hours TBD
Sophia Larson (skl57@drexel.edu), sections 064 and 065, office hours TBD

CATALOG DESCRIPTION

This course is an introduction to geology emphasizing the role of plate tectonics. Topics include formation of minerals, igneous, sedimentary, and metamorphic rocks, volcanoes, earthquakes, depositional environments, and geological hazards. Labs focus on mineral and rock identification, map skills, and 3D visualization.

COURSE PURPOSE

The course is designed to provide you with a broad understanding of the physical processes at work within and on the surface of the Earth. The main questions to be addressed are how did the Earth get to its present form and what processes are presently occurring.

LEARNING OUTCOMES

By the end of this course, you will:

1) understand and apply the scientific method
2) apply the rudiments of geology to identify rocks and minerals, read landforms, and infer the processes that form them
3) use and interpret topographic and geologic maps

TEXT(S) AND OTHER MATERIALS

REQUIRED Resources:

- Google Earth**: You must also download or have access to the latest version of Google Earth (don't worry – it's free.)**

Recommended Resources:

- **Essentials of Geology (7th Edition)**, W.W. Norton, 2021
  by Stephen Marshak

Note that you can get the eBook directly from the publisher for $60. See https://digital.wwnorton.com/essgeo7

- **Laboratory Manual for Introductory Geology (4th Edition)**, W.W. Norton, 2018
  by Alan Ludman and Stephen Marshak
- Additional Reading may be assigned.

Other good resources:
Why Geology Matters: Decoding the Past, Anticipating the Future
-by Douglas Macdougall
Exploring Geology – McGraw-Hill
-by Stephen Reynolds, Julia Johnson, Mike Kelly, Paul Morin and Chuck Carter

COURSE FORMAT

Drexel returned to a fully in-person mode of instruction in March 2022, following the crisis of the COVID-19 pandemic. As a result, lectures and labs will be held **in person** for the duration of Fall Term.

There will be no in-person lecture on the days when midterm exams will take place. Instead, exams will be carried out online on BlackBoard Learn.

COVID PRECAUTIONS AND ACCOMMODATIONS

Be aware of your responsibilities as students during the COVID pandemic and make sure you stay up-to-date and follow best practices for your health and that of the community. At present, this primarily includes isolation protocols when displaying symptoms and after testing positive.

For more information:
https://drexel.edu/coronavirus/frequently-asked-questions/students/

EXPECTATIONS

- You are expected to attend lectures and laboratory, to be on time, and to be prepared
- Follow Drexel health guidelines
- Read book chapters if you elect to follow the recommended textbook
- **YOU MUST ATTEND AND PASS THE LABORATORY TO PASS THE COURSE**
- Turn cell phones off upon entering the classroom
- Handwritten assignments and exams must be legible. Instructor/TA can't grade what they can't read. In addition, all written documents and communications must follow proper grammar and syntax, and avoid colloquialisms or conversational tone or structure.

ASSESSMENT CRITERIA

- **Exams**: You will be assessed mostly by means of three **exams**: two mid-term exams during the course of the quarter, and one comprehensive **final exam** to be held during the examination period of December 9-13. Midterm exams will only test material covered since the last exam. However, the **Final exam will be cumulative**.
  Exams will be a combination of multiple choice, short answers and discussion questions covering all material from assigned text chapters and lectures. The majority of questions will be in a written format, some questions however may refer to a diagram/picture. Remember that **you may be asked questions on the lab material on your lecture exams**.
  - All exams will be timed and administered online and made available during a 24-hour window. No lecture will be scheduled on exam days.
  - **Only two of the three exams will count towards your grade**, allowing you to miss a midterm, or even the final (for whatever reason).

- **Quizzes**: These required, after-class assignments are intended to reinforce your understanding of course content. They will be issued online, approximately one per week, and you will have a week to complete each one. There will be 11 quizzes during the course of the term, and the quiz with the lowest grade will be dropped. They must be submitted online via Blackboard. They will typically become available after the Thursday class, and must be completed by the following Thursday.
  - *Quizzes submitted late will receive a penalty of one point per week. Quizzes submitted after the end of week 10 will not be accepted and will receive a score of zero.*

- **Labs**: During each lab, you will be required to fill out question sheets pertaining to the week's activities. Your lab assignments will count for roughly 1/3 of your final grade. A lab final will serve to evaluate your lab skills and represent ~¼ of your lab grade.

  The lab manual is no longer required for this course. We will provide handouts of necessary resources. Note that during your lecture exams, you may be asked questions on related lab material.

  You can only make up one missed lab; the lab session in week 9 is reserved to make up missed labs.

- **Other assignments**: there will be at least one small task / assignment to be completed during the term that will count for a small portion of the grade. Details will be announced during the term.

GRADE COMPONENTS:

Best exam	26%
Second-best exam	26%
Worst exam	0%
Labs (incl. lab final)	33%
Weekly quizzes	10%
Other assignments / Projects	5%

LABORATORY:

The accompanying laboratory is an integral part of this course and counts for about one third of your grade. ***YOU MUST PASS THE LABORATORY PORTION OF THIS COURSE IN ORDER TO PASS THE WHOLE GEOLOGY COURSE, REGARDLESS OF YOUR LECTURE EXAMS AND ASSIGNMENT GRADES AND ATTENDANCE.*** Background material for the labs will often be covered in lecture. Remember that **you may be asked questions on the lab material on your lecture exams.** Your lab grade will be determined as described in your lab syllabus.

Laboratory attendance is mandatory. The week 9 lab session is reserved to make up missed labs.

For safety reasons, **you must wear shoes that enclose your whole foot and long pants to every lab**. You do not need a lab coat or goggles. Students who are not wearing lab-appropriate clothing will be asked to leave the lab and will receive a score of zero on that week's lab. **I will be intransigent about this policy**.

Extra Credit: Extra credit opportunities may arise throughout the quarter. These will often involve attendance at seminars, thesis proposals/defenses, etc. If you would like to attend a pertinent event that I have not announced, in class, please bring it to my attention. You must submit a one-page summary of the event before the last day of class.

GRADING SCALE

A+ = >96% or more
A = 93 - 95.99%
A- = 90 - 92.99%
B+ = 87-89.99%
B = 83 - 86.99%
B- = 80 - 82.99%
C+ = 77-79.99%
C = 73 - 76.99%
C- = 70 - 72.99%
D+ = 67-69.99%
D = 63 - 66.99%
D- = 60 - 62.99%
F = <60%

I reserve myself the right to change the grading scale at the end of the quarter, but only if doing so would work in your favor.

BbLearn: Lecture slides will be available on BBLearn typically 24 hours prior to lectures. The syllabus and other pertinent information will be available throughout the quarter or immediately following its announcement.

Needs: Please contact me with any questions or concerns that you may have.

COURSE AND UNIVERSITY POLICIES

Late submission policies:

- **Midterm exams** can only be taken on the day they are offered on BlackBoard. Arrangements can be made in advance to accommodate your schedule for you to take the exam early or late if needed. The exam closes at midnight of the day it is offered and late submissions will not be accepted. A missed exam will automatically be assigned a score of zero (0).
- The **final exam** will be offered between Monday and Thursday of Finals Week. Due to university deadlines, there can be no exception to this rule. A missed final exam will automatically be assigned a score of zero (0).
- **Labs** have to be submitted to your TA no later than by the start of the following week's lab session. Labs submitted late will receive a penalty of 10% per week beyond the deadline. Labs submitted **after the end of the term on Friday December 6** will not be accepted and will automatically receive a score of zero.
- **Quizzes** must be completed within a week of them going live. Late quizzes will receive one penalty point (10%) for being submitted late, and accumulate 1 penalty point each week beyond the deadline. Quizzes submitted **after the end of the term on Friday December 6** will not be accepted and will automatically receive a score of zero.
- Due to university deadlines, no lab, quiz, or assignment can ever be accepted if it is submitted **after the end of the term on Friday December 6**. There can be no exception to this. All coursework must be turned in before the end of the term. Any outstanding lab, quiz, or other assignment will automatically receive a score of zero beyond this deadline.

Academic Dishonesty (or Cheating):

In conjunction with the **Academic Integrity Policy** and the **Student Code of Conduct**, statements of honor have been approved for the undergraduate student and graduate student populations.

Undergraduate Students

As members of the Drexel University undergraduate student body, we seek to uphold a learning environment that embraces preeminent standards of education, integrity, and community. We strive to conduct ourselves in a manner that is beyond reproach, adhering to the University's Code of Conduct and Academic Honesty policies. Devoted to the principles of mutual respect, equality, and honor, we assume an obligation to serve one another.

Graduate Students

As a Drexel University graduate student and aware of the University's mission, I commit myself to excellence in research, teaching, and service. In furtherance of that aim and because I understand that my actions affect all members of the Drexel community and my profession, I pledge to conduct myself with the highest integrity, honor, and respect in all my endeavors.

Add/drop:

Students are encouraged to review current policies on adding and dropping classes, and course withdrawal, at http://drexel.edu/provost/policies/course-add-drop/ and http://drexel.edu/provost/policies/course-withdrawal/

Incomplete ("INC") grades

A grade of "INC" (Incomplete) may be reported in place of a letter grade for any course in which the instructor deems that the incomplete work can be completed by the student within an agreed upon time in accordance with the **Grade of Incomplete Guidelines policy** and the **statute of limitations for changes to the academic record**. The conditions and terms for the completion of the course are at the discretion of the instructor and are to be mutually agreed upon by the instructor and the student before the end of the term. It is strongly recommended that the student and instructor enter into an **Incomplete Grade Contract [PDF]** to clarify expectations, deliverables and timeline. The timeline should be no more than two academic terms. An INC grade that is not completed by the agreed completion date, will turn into an administrative F (I/F)

Attendance

I do not take attendance and occasional absences from class need not be excused. Please notify your TA in case of absences from labs to arrange making up missed labs. In the event of multiples absences, students are encouraged to notify me that they will be unable to attend class.

Religious observance

Religious Observances Policy encourages respect for the diverse spiritual backgrounds of the Drexel community and sets guidelines to accommodate the observance of religious holidays and practices. Please review this policy and the **Religious Observances Calendar**, which lists dates for most observances that might be invoked. Please provide appropriate accommodations for these observances.

CLASS

The **Center for Learning and Academic Success Services (CLASS)** empowers students to develop skills and strategies that foster academic success and personal growth through purposeful interactions with peers and professional staff.

CLASS supports Drexel University students' efforts to achieve their academic goals through a variety of services, including Academic Coaching, Tutoring, Teaching GSTD 100: Strategies for Academic Success, Workshops and Events. CLASS also houses several programs that promote student success and academic engagement.

Learning Alliance

Learning Alliance is a network of offices on campus and online that support students' academic success including tutoring. By working together, the partner offices ensure students receive guidance and support, and this network provides a direct referral to additional resources when needed. The member offices of the Learning Alliance can be found at **http://drexel.edu/studentlife/student_family_resources/learning-alliance/**.

Equality and Diversity

The mission of the **Office of Equality & Inclusive Culture** is to promote, support, and sustain a welcoming University environment of equality, fairness and respect that fosters life-long learning through diversity and inclusion. The Office is responsible for ensuring equal opportunity and compliance with University policies and federal, state and local laws prohibiting discrimination based upon race, color, religion, gender (sex), marital status, pregnancy, national origin, age, disability, veteran status, sexual orientation, gender identity and expression, genetic information, and any other prohibited characteristic. Please review their policies, notably EIC-1 on Discrimination, Harassment, and Bias Incident Prevention, and EIC-3 policy on Sexual Harassment and Sexual Misconduct.

Students, faculty members, and professional staff with questions about or complaints concerning discrimination, harassment, and/or retaliation should contact the **Office of Equality & Inclusive Culture** at 215.895.1405 or **EIC@drexel.edu**. Please visit the website and **Title IX Resource Page** for more information.

DISABILITY ACCOMMODATIONS FOR STUDENTS

Through the Office of Disability Resources (ODR), the University provides reasonable accommodations to qualified individuals with disabilities to ensure equal educational and employment access, including equal access to University courses, programs, facilities, services, and activities. Please see the **Office of Equality and Inclusive Culture's general policies page** to access the **Reasonable Accommodation of Individuals with Disabilities policy** along with the **Service and Assistance Animals Policy**.

Students, faculty or staff seeking reasonable accommodations for their disabilities must register with ODR to receive an accommodation. It is the individual's responsibility to provide their Accommodation Verification Letter (AVL) to the person facilitating their accommodations in advance of when those accommodations are needed, and to inform them of which of their approved accommodations they are requesting to use. When providing or facilitating accommodations for students with disabilities, it is important to remember that any student with a disability should be treated exactly the same as all other students, with the only exception being the accommodations specifically stated on the student's Accommodation Verification Letter (AVL). If a student requests an accommodation not listed on their AVL, they must be referred to ODR to have those additional requests reviewed and evaluated.

CALENDAR

Subject to change

GEO 101 FALL 2024 COURSE SCHEDULE (subject to modifications)				
Date			*Topics or activities*	*Text readings*
1	Tue	24 Sep	Syllabus, Introduction, why geoscience matters The scientific method	Prelude
2	Thur	26 Sep	The origins of Earth Earth structure and Continental drift	Chapter 1 Chapter 2
L1			**LAB 1**: Google Earth: our planet from above	-
3	Tue	1 Oct	Plate tectonics Elements and atoms, and minerals	Chapter 2 Chapter 3
4	Thur	3 Oct	Minerals Mineral structure and identification Rocks and the rock cycle	Chapter 3 Lab manual §4 Interlude A+C
L2			**LAB 2:** Plate tectonics	-
5	Tue	8 Oct	Magma Igneous rocks	Chapter 4 Chapter 5
6	Thur	10 Oct	**MIDTERM 1**	
L3			**LAB 3:** Minerals	Lab book § 3
7	Tue	15 Oct	Sedimentary environments: erosion and transport	Interlude B + §6
8	Thur	17 Oct	Sedimentary environments: marine Sedimentary environments: other	Interlude B Chapter 6
L4			**LAB 4:** Igneous rocks	Lab book § 5
9	Tue	22 Oct	Metamorphism Metamorphic rocks	Chapter 7
10	Thur	24 Oct	Geological structures: cracks, folds Building mountains – orogenesis	Chapter 9
L5			**LAB 5:** Sedimentary rocks	Lab book § 6
11	Tue	29 Oct	Deep time: fossils and evolution Deep time: relative and absolute dating	Interlude E Chapter 10
12 L6	Thur	31 Oct	An abbreviated look at Earth's history **LAB 6:** Metamorphic rock	Chapter 11 -
13	Tue	5 Nov	***Election Day: NO CLASS!***	-
14	Thur	7 Nov	**MIDTERM 2**	-
L7			**LAB 7:** Geological dating	Lab book § 17
15	Tue	12 Nov	Geology of Pennsylvania Disasters: volcanic eruptions	Chapter 5 Chapter 8
16	Thur	14 Nov	Disasters: earthquakes and tsunamis Disasters: landslides and mass movements	Chapter 13
L8			**LAB 8:** Deformation and geological mapping	Lab book § 9
17	Tue	19 Nov	Earth resources	Chapters 12+16
18	Thur	21 Nov	The climate system Climate in the Pleistocene	Chapter 18
L9			**LAB 9:** Lab review session / make-up sessions	
19	Tue	26 Nov	Modern global change	Chapter 19
	Thur	28 Nov	***Thanksgiving break, no lecture*** ***Thanksgiving break, NO LAB***	
20	Tue	3 Dec	Lecture TBD	
21	Thur	5 Dec	*Review session*	
L10			**LAB FINAL**	
FIN		9-11 Dec	**FINAL EXAM (COMPREHENSIVE)**	-