



# **Geos 110**

## **Earth and the Environment**

**Spring, 2016**

Instructor: Prof. James Mills

Office: JSC 214 Phone: 658-4669 or 658-4654 (Secretary)

Office Hours: 10:00-11:00 MWF, or by appointment  
(Lecture and lab in JSC 222)

### **Course Objectives:**

The goal of this course is to provide you with a broad overview of the physical nature of the Earth. In this course, we will examine the types of materials that make-up the earth and what processes are at work both internally and externally.

You will find that this course is directly applicable to your everyday experience. Much of what you learn in this course will allow you to better understand why the landscape around you appears as it does, what it is made up of, how it has changed over time, and how it might change in the future! In addition, you will come to better understand the dynamic geologic processes that affect our lives (both non-catastrophic and catastrophic), and how our lives affect the planet.

What you will hopefully come away with is a fundamental understanding of the physical world around you and how scientists are working to better understand the Earth (and other planets as well!) through the process of scientific discovery.

### **Text:**

***Essentials of Geology, 4<sup>th</sup> edition***

by: Marshak, S., 2009, W.W. Norton

ISBN 978-0-393-93238-6

***Geotours Workbook,***

By: Wilkerson, Marshak, Wilkerson, 2009

ISBN 978-0-393-93462-5

### **Class Meeting Times:**

**Lecture** 1:40-2:40 pm MWF

**Lab** 8:00-9:50 am Tuesday (Section A)

**Lab** 8:00-9:50 am Thursday (Section B)

### **Attendance:**

Regular attendance is required for all lectures and laboratories. Although I do not take attendance, there is a distinct correlation between class attendance and the final grade. Hearing, seeing, and discussing the material simply cannot be replaced by just reading the book or someone else's notes.

If you must miss a class or a laboratory, please let me know in advance if at all possible.

Please come to your assigned lab day (Tuesday or Thursday).

With respect to the laboratory, you must attend and be on time. Discussion of the lab material usually occurs at the beginning of lab so it is imperative that you be there and be on time. *I will not give a lab lecture twice.*

### **Laboratory:**

As the laboratory experience is intimately intertwined with the lecture material. You are expected to participate in every laboratory exercise. The labs are due the following week at the beginning of lab unless otherwise noted. ***Late labs will not be accepted and will be given a grade of zero.*** There will be three laboratory quizzes during the semester. **Failure to turn in three or more labs will result in an 'F' for the course regardless of any other course grades.**

**Laboratory Fee:** A \$20.00 lab fee will be added to your DePauw account to cover the cost of the lab book and materials.

**Homework:**

Homework assignments will occasionally be given during the course of the semester. *Late assignments will NOT be accepted.* For written assignments, I expect these will be typed with 1” margins and double-spaced. Although content is most important, I will also grade on organization, neatness, grammar and spelling.

**Examinations:**

One-hour exams are scheduled approximately once every four weeks. See the attached lecture syllabus for the approximate dates. *No make-up exams will be given except for documented emergencies.*

The final exam will be given on the scheduled date and will be *comprehensive*. The final exam *may not* be taken at any other time than the officially scheduled time.

**Grading and Grade Scale:**

One-hour exams (2)	30%
Final exam	20%
Lab Assignments	15%
Lab Quizzes	20%
Homework (includes Geotours)	15%

A 93-100%	C 76-74%
A- 92-90%	C- 73-70%
B+ 89-87%	D+ 69-67%
B 86-84%	D 66-64%
B- 83-80%	D- 63-60%
C+ 79-77%	F <60%

**'Q' Certification:**

You must successfully satisfy both of the criteria below to receive Q-certification.

- 1) *Average 75% on the combined lab quizzes and lab assignments.*
- 2) *Receive a course grade of C- or better.*

**ACADEMIC HONESTY:**

Any act that places a student in unfair advantage with respect to the rest of the class will be treated according to the University procedures outlined in the Student Handbook.



### **Americans with Disabilities Act and Amendments (ADAAA) Policy**

DePauw University is committed to providing equal access to academic programs and university administered activities with reasonable accommodations to students with disabilities, in compliance with the Americans With Disabilities Act and Amendments (ADAAA). Any student who feels she or he may need an accommodation based on the impact of a disability or learning challenge is strongly encouraged to contact:

#### ***Student Disability Services:***

**Pamela Roberts, Director of Student Disability Services and ADA Compliance**  
**408 S. Locust Street, Suite 200, Memorial Student Union Building**  
**765.658.6267**

#### ***Student Responsibilities:***

It is the responsibility of the student to share the letter of accommodation with faculty and staff members. Accommodations will not be implemented until the faculty or staff member has received the official letter. Accommodations are not retroactive. It is the responsibility of the student to discuss implementation of accommodations with each faculty and staff member receiving the letter.

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**WEEKLY LECTURE SYLLABUS**

<b>Week</b>	<b>Topics</b>	<b>Reading</b>
Feb. 1	Introduction, Continental Drift, Plate Tectonics	1, 2
8	Plate Tectonics	2
<i>(February 8<sup>th</sup>: Last day to add/drop a class, or change grade status)</i>		
15	Minerals, Igneous Rocks	Interlude A, 3, 4
22	Igneous Rocks, Volcanism	4, 5
29	Volcanism, Sediments/Soils, Sedimentary Rocks	Interlude B, 6
<b>EXAM #1 Friday, March 4<sup>th</sup></b>		
March 7	Sedimentary Rocks, Metamorphic Rocks	6, 7
14	CLASS PROJECT – Class will not formally meet	
<b>Spring Break : March 19<sup>th</sup> – March 27<sup>th</sup></b>		
28	Rock Cycle Earthquakes, Interior of the Earth	Interlude C, D 1, 8
<i>(April 1<sup>st</sup>: Last day to drop a class with a 'W', Change Grade Status, Change P/F Status)</i>		
April 4	Earthquakes, Interior of the Earth	Interlude D, 1, 8
11	Geologic Time and Evolution, Fossils, Hydrologic Cycle	Interlude E, F, 10, 14
18	Streams, Groundwater	14, 16
25	Groundwater, Glaciers	16, 18
<b>EXAM #2 Monday, April 25<sup>th</sup></b>		
May 2	Glaciers, Mountain Building	18, 9
9	Mountain Building, Final Exam Review	9
<b>FINAL EXAM Tuesday, May 17<sup>th</sup>, 8:30-11:30 am (Comprehensive)</b>		

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**WEEKLY LABORATORY SYLLABUS**

<b>Week</b>	<b>Lab</b>	<b>Topic</b>	<b>Exercise</b>
FEB. 1	1	MEASURING THE EARTH WITH A GPS	13
	8	MINERALS I	1
	15	MINERALS II / IGNEOUS ROCKS	1, 2
<b>February 22 LAB QUIZ #1 Minerals</b>			
	22	IGNEOUS ROCKS (Mineral Quiz)	2
	29	SEDIMENTARY ROCKS / METAMORPHIC ROCKS	3, 4
MARCH 7	6	METAMORPHIC ROCKS	4
	14	NO LAB THIS WEEK (PROJECT WILL BE ASSIGNED)	
<b>Spring Break March 19<sup>th</sup> - 29<sup>th</sup></b>			
	28	TOPOGRAPHIC MAPS (ROCK QUIZ)	6C
<b>March 28 LAB QUIZ #2 Rocks</b>			
APRIL 4	9	TOPOGRAPHIC MAPS	6C
	11	GEOLOGIC STRUCTURES	10
	18	SHADES STATE PARK	8
	25	STREAM FLOW BIG WALNUT CREEK FIELD TRIP I (DATA COLLECTION: OUTDOOR EXERCISE)	9
MAY 2	13	STREAM FLOW – BIG WALNUT CREEK II (DATA ANALYSIS AND LAB WRITE-UP)	9
	9	14 LAB FINAL	
<b>May 9 Lab Final - Comprehensive</b>			

**Prof. James Mills**

Spring, 2016

*Dept. of Geosciences*

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	<i>Monday</i>	<i>Tuesday</i>	<i>Wednesday</i>	<i>Thursday</i>	<i>Friday</i>	
8-9:00	Geos 320 8:00 – 9:00	Geos 110A Lab	Geos 320 8:00 – 9:00	Geos 110B Lab	Geos 320 8:00 – 9:00	
9-10:00		8:00 – 9:50		8:00-9:50		
10-11:00	Office Hour		Office Hour		Office Hour	
11-12:00						
12-1:00		Committee Meeting		Geos 320 Lab		
1-2:00	Geos 110 1:40-2:40	12:40 – 2:00	Geos 110 1:40-2:40	12:40-3:30	Geos 110 1:40-2:40	
2-3:00						
3-4:00						
4-5:00	Faculty Meeting	Committee Meeting				
5-6:00	Faculty Meeting	4:00-6:00 pm				
7-8:00						
8-9:00						

**Geos 110 = Earth and the Environment, Julian 222**

**Geos 320 = Petrology, Julian 226**



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**DAILY SYLLABUS**

Feb.	1	Introduction, Syllabus
	3	Continental Drift
	5	Continental Drift, Plate Tectonics
1		
	8	Plate Tectonics
	10	Plate Tectonics
	12	Minerals
2		
	15	Minerals
	17	Igneous Rocks
	19	Igneous Rocks
3		
	22	Volcanism
	24	Volcanism
	26	Volcanism
4		
	29	Weathering
March	2	Weathering, Sedimentary Rocks
	4	<b>EXAM #1</b>
5		
	7	Sedimentary Rocks
	9	Sedimentary Rocks
	11	New Zealand – No class
6		
	14	New Zealand – No class
	16	New Zealand – No class
	18	New Zealand – No class
7		
<b>March 19<sup>th</sup> – 27<sup>th</sup></b>		<b>Spring Break</b>
	28	Rock Cycle, Metamorphic Rocks
	30	Metamorphic Rocks
April	1	Earthquakes
<b>8</b>		
	4	Earthquakes
	6	<b>Day of Inclusion – No class</b>
	8	Interior of the Earth
9		

April	11	Interior of the Earth
	13	Geologic Time, Fossils
	15	Geologic Time
10		
	18	Geologic Time, Hydrologic Cycle
	20	Streams
	22	Streams
11		
	25	<b>EXAM #2</b>
	27	Groundwater
	29	Groundwater
12		
	2	Groundwater
May	4	Glaciers
	6	Glaciers
13		
	9	Mountain Building
	11	Mountain Building, Final Review
14		

**Final Exam:** Tuesday, May 17<sup>th</sup>, 8:30-11:30 am