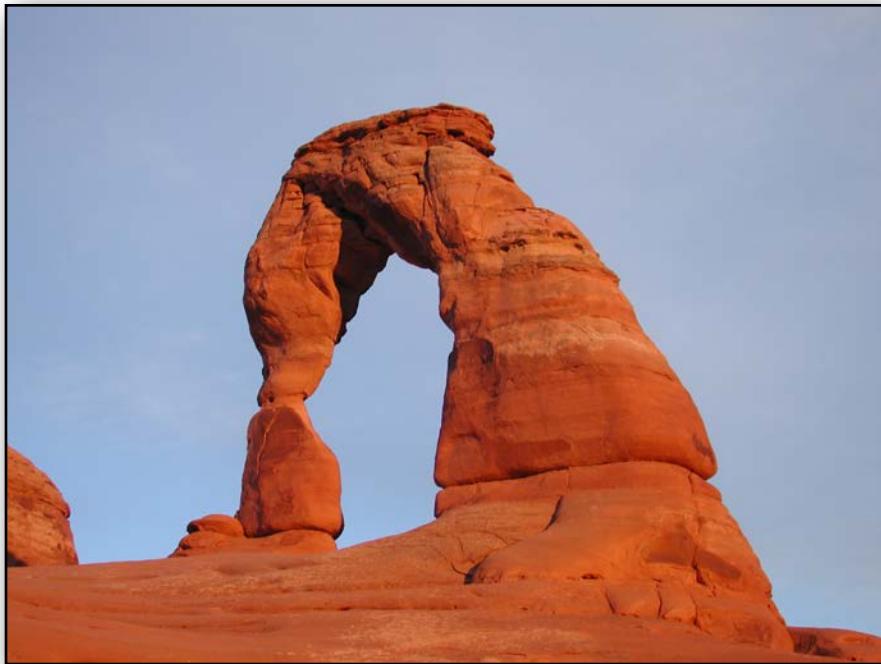


# Geology of America's National Parks

## Syllabus



### COURSE DESCRIPTION (FROM COURSE CATALOG)

Study of the geologic history of America via the National Park System. The course focuses on origin and evolution of landforms in various national parks and the geologic processes that created and sculpted them. Park features serve as a point of departure for interdisciplinary discussions on society's impact on the lithosphere, hydrosphere, atmosphere, and biosphere.

### COURSE GOALS

To recognize geologic features preserved within the National Park System and use these features as a means to gain an understanding of, and an appreciation for, the dynamic forces that constantly shape and change our evolving planet. By the end of the course, you should be able to identify the major geologic features preserved in each park studied and to describe their origin/evolution.

*This syllabus is meant to provide an outline for the general flow of the course. At my discretion, I will add or omit topics and/or modify the timetable.*

**Instructor**  
M. Scott Wilkerson  
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<http://www.depauw.edu/academics/departments-programs/geosciences/>

**Class**  
10:20-11:20 am MWF-Julian 223  
8:00-9:50 am Th-Julian 223 **LAB**

**Office Hours**  
2:45-3:45 pm MWF  
*other times: stop in or by appt.*

**Texts**  
*Geology of National Parks* (loose-leaf)  
Harris, Tuttle, & Tuttle,  
(2004, 6th ed., Kendall-Hunt)  
*Geotours Workbook*,  
Wilkerson, Wilkerson, & Marshak,  
(2012, Norton)

**Materials**  
Calculator, ruler, small stapler, &  
USB drive



## DESCRIPTION

This course employs a variety of teaching approaches to maximize student learning of geoscience content in a classroom where different students optimally learn material in different ways. Specifically, of the 5 hrs/wk of class time that we are together, ~3 hrs/wk will involve lecture/discussion (aka “lectures”) and ~2 hrs/wk will involve hands-on active learning (aka “labs”).

I provide my slides as PDFs on Moodle, so that students can print them out before class and annotate them with notes during class. That way, students aren’t scrambling to write down every single word on a slide, allowing them to focus on the content and to participate in the discussion. To facilitate discussion, students must “R&R” before class (no, this is not “rest & relaxation”, but rather “read & retain” the assigned materials). The best discussions often arise from student questions about the material (and/or current events highlighted in the media). Our “lectures” will often include movie clips, animations, whiteboard

drawings, etc., and active learning assignments using Google Earth. The latter is especially important because students not only “see it, hear it”, but can “see it, hear it, and then practice it” as well.

Our active-learning sessions in “lab” will allow us to be hands-on with rock specimens, maps of the parks, and/or Google Earth. To be most effective, be sure to “R&R” the lab materials before each Thursday session. The Geoscience Computational Laboratory (Julian 201) should be open from ~8:00 am-5:00 pm weekdays to work on Google Earth lab projects (except when classes are being conducted in the room). Assignments typically are due at the beginning of the next week’s lab unless specified otherwise.

## GRADES

The basis for final grades is described in the table below. All materials to be turned in for a grade should be clearly written (or typed) and stapled. Late assignments will not be accepted and will receive a “0”. Extensions/make-ups for assignments/exams/quizzes will not be given unless there is a documented emergency or unless we have made arrangements in advance because of exceptional circumstances. Quizzes will be unannounced and will cover assigned material for both “lecture” and “lab”.



Percent of Final Grade	Grading Scale*	
Exam 1	20%	A 100-93%
Exam 2	20%	A- 92-90%
Exam 3	25%	B+ 89-87%
Assignments/Quizzes	10%	B 86-83%
National Park Google Earth Project	20%	B- 82-80%
National Park Google Earth Project book	05%	C+ 79-77%
		C 76-73%
		C- 72-70%
		D+ 69-67%
		D 66-63%
		D- 62-60%
		F <60%

\*Numeric scores rounded up from 0.50. I reserve the right to adjust the grading scale up slightly (benefitting you!), if warranted by the class grade distribution.

## KEYS TO SUCCESS IN THIS COURSE

1. **Read the Assigned Chapter** in a distraction-free environment and in advance of lecture over that material. As you're reading, carefully note any questions that you have.
2. **Take Good Notes.** Students with complete notes seem to do better in class. If possible, print out the lecture slides before class and annotate them from the lecture/discussion (including sketches from the whiteboard). Rewriting your notes will make them more legible and orderly, plus it will help you focus on areas that are still unclear. Be careful of falling into "TV-watching mode", as it is easy to look at the pictures and not take down any notes.
3. **Ask Questions.** The only "bad" question is one that is unasked. Because you will be responsible for material in each assigned chapter whether that material is specifically covered during lecture or not, it is essential to ask questions to clarify any concepts that you do not understand. If I forget to call on you while I am in the middle of explaining something in lecture, PLEASE raise your hand again to remind me as I most certainly want to answer your questions!
4. **Know the Key Terms** at the end of each chapter (these are italicized in the chapter text). If I use a term that you don't understand, PLEASE ASK me to define it.
5. **Use the Glossary** in the back of the book to help understand key terms.
6. **Check out the Internet.** There is a world of information on the geology of the national parks out on the Web (e.g., <http://www.nps.gov/>, <http://www.npca.org/>, <http://parks.mapquest.com>). You also might use a search engine to find web sites of interest.
7. **Use the library.** There are many books & articles in the library that pertain to specific national parks (see <http://libguides.depauw.edu/geosciences>; we have a great interlibrary loan system for other materials that our library does not carry). Also, you will find introductory geology textbooks in the library, which will provide helpful information about geologic features and processes.
8. **Create your own Study Aids.** Some people like to highlight text in the chapter, others like to make flash cards, and still others like to study in groups and discuss the material. Feel free to experiment with what works for you. In addition, the Academic Resource Center in Asbury Hall (1st floor) has Q tutors and trained people available to help you refine and improve your study habits and techniques.
9. **Study the Material on a Regular Basis.** It is important that everyone maintain good study habits by regularly working with the assigned material. Procrastination and cramming just don't work for most of us...it is best to get comfortable with the material as we go along so that you don't fall behind.
10. **Study for the Exam** as an individual and then as a group. Again, different people study in different ways. I've found that it helps to study as an individual first (thinking about what important concepts were emphasized in each chapter & lecture), then get together with others and study as a group (e.g., asking each other questions, brainstorming about what will be on the test, etc.).

### FAQ:

Are lecture notes from the slides provided? PDF's of the lecture notes will be available in Moodle. Please bring printouts to class, so that you can annotate them. Please note that if I post notes from the last time the course was offered, I will post any revised PDF's of the lecture notes before the next corresponding exam.

Should we copy all the text on the slides? There shouldn't be a need with access to PDF's of the lecture notes. However, it is *far better* to listen to me/our discussion and take notes than to copy the slides.

Sometimes text on slides is really just to trigger me on a topic and not something to be committed to your notes. In addition, I commonly go more in-depth than what is on the slides, and you will want to learn that detail.

Can we have an exam review sheet? I have found it much more effective to highlight topics as a preface for each slide set with a "Some Key Things to Know..." slide, so that you are aware of important topics prior to me going over them. In addition, we usually arrange a time prior to an exam to conduct an oral Q&A review to clarify geoscience concepts.

## ORDER OF TOPICS

Week Starting	Lecture Topics & [Reading Assignments]	Lab Topics
01: 01/27	Syllabus Nature of Scientific Inquiry/Plate Tectonics <i>[Preface; pages xiv, 1-6]</i>	Introduction to Google Earth Plate Tectonics
02: 02/03	Rocks/Rock Cycle Introduction to the National Park System	Rocks are Gneiss, but Don't Take Them for Granite
03: 02/10	Grand Canyon NP <i>[Inside front cover; Chap 1]</i>	Geologic Time Scroll <b>NP Google Earth Project TOPIC DUE</b>
04: 02/17	Grand Staircase NM Zion NP & Bryce Canyon NP <i>[Chap 2 &amp; 3]</i>	Creating, editing, & formatting placemarks
05: 02/24	Capital Reef NP <i>[Chap 4]</i>	Placemark images, URLs, & videos
06: 03/03	Canyonlands NP & Dead Horse Point SP <i>[Chap 5]</i> <b>Exam #1-03/05 (est)</b>	Paths, Polygons, Tours, & Animations
07: 03/10	Arches NP <i>[Chap 6]</i>	Image & Photo Overlays
08: 03/17	Petrified Forest/Painted Desert NP & Badlands NP <i>[Chap 8 &amp; 9]</i> <b>last day to withdraw with W-03/21</b>	National Park Google Earth Project
09: 03/24	Spring Break	
10: 03/31	Mammoth Cave NP Carlsbad Caverns NP <i>[Pages 187-190, Chap 14 &amp; 16]</i>	National Park Google Earth Project
11: 04/07	<b>Exam #2-04/09 (est)</b> Rocky Mountain NP Waterton-Glacier International Peace Park <i>[Pages 289-294, Chap 25 &amp; 26]</i>	National Park Google Earth Project
12: 04/14	<b>Exam #2-Nov 4</b> Glacier Bay NP Wrangell-St Elias NP Denali NP <i>[Chap 31, 32, &amp; 34]</i>	National Park Google Earth Project
13: 04/21	Yosemite NP <i>[Chap 28]</i>	National Park Google Earth Project <b>Submit NP Google Earth Project Book</b>
14: 04/28	Mt. St. Helens NM Mt. Rainier NP Crater Lake NP <i>[Pages 505-510, Chap 35 &amp; 36]</i>	National Park Google Earth Project
15: 05/05	Hawaii Volcanoes NP Yellowstone NP <i>[Chap 40 &amp; 43]</i>	<b>NP Google Earth Project &amp; Book DUE</b>
<b>Exam #3: Tues, May 13, 8:30-11:30 am, Julian 223</b>		
<b>Note: These topics and exam times are subject to change.</b>		
Students (21+ years old) willing to become certified for driving University vehicles should visit <a href="http://www.depauw.edu/studentlife/campus-safety/publicsafety/education-and-awareness/drivers-safety/">http://www.depauw.edu/studentlife/campus-safety/publicsafety/education-and-awareness/drivers-safety/</a> to find out about driver certification classes.		

# Policy Page

## ATTENDANCE

Regular and on-time attendance is expected and monitored (see the Student Handbook <http://www.depauw.edu/handbooks/academic/policies/attendance/>). As stated in the Student Handbook, excessive absences can be grounds for being dismissed from the course. In addition, it has been my experience that learning comprehension improves dramatically when students are present to listen to lectures, to ask questions, and to discuss the material in the classroom setting. In addition, some activities (e.g., labs) require attendance to receive credit. Should you know that you will be absent (e.g., health issue regarding yourself or immediate family, athletic obligation, etc), please contact me in advance to make arrangements about assignments.

## ACADEMIC INTEGRITY

Any attempt to gain an unfair advantage over other students in the class will be handled in accordance with established University procedures as described in the Academic Handbook section on Academic Dishonesty:  
<http://www.depauw.edu/handbooks/academic/policies/integrity/>

Writing Center Information on Plagiarism:  
<http://www.depauw.edu/academics/academic-resources/academic-resource-center/w-center/w-center-handouts/>

## ADAAA STATEMENT

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 Pamela Roberts, Coordinator of Student Disability Services for further information on how to receive accommodations and support. Student Disability Services is located at 101 E. Seminary St., 765-658-6267.

## CELL PHONE & LAPTOP USE

Cell phones and laptops are not allowed to be used in the classroom except for 1) activities directly related to our course as specified by your instructor or 2) special circumstances involving a personal emergency situation with the instructor's permission. I will have my cell phone on in the case of a campus emergency.

Please read the following: <http://www.insidehighered.com/blogs/just-visiting/open-letter-incoming-freshmen>

## CLASSROOM BEHAVIOR

- **Respect everyone** (yourself, your peers, and your instructor).
- **Listen and contribute.** Lecture and discussion portions of our class can quickly morph to lecture only if you are not an active and contributing participant in class.
- **Work to the best of your ability.** True learning is hard work and is constructed and nurtured by you (not simply transferred from the instructor). A strong work ethic will not only serve you well in this course, but in life in general. Do not settle for less than your best effort.
- **Be aware of consequences (positive & negative).** If you make good decisions (e.g., reading the course materials, taking notes, asking questions, working hard, etc.), you will likely experience good consequences such as enhanced understanding of geoscience processes, improved grades, and general success in life. Conversely, poor decisions (e.g., waiting to cram right before an exam or assignment, pulling an "all-nighter" and coming to class exhausted, relying on energy drinks or other substances, distracting yourself or others with cell phones or laptops, etc.) typically have negative consequences that cause your understanding of course content to suffer.
- **Consider the classroom your workplace.** Once you step inside the classroom, commit yourself to learning as much as you can during that hour. Try to take care of personal needs (e.g., bathroom breaks, social networking, etc.) during the break between classes.