

Geology 100:
Physical Geology
 Spring 2020 (1 section)
 3 February through 28 March (8 weeks)
 Miramar
 San Diego Miramar College
 Revised 2 February 2020

Phil Farquharson
 "Mostly" retired Geology professor...
 philfarq@gmail.com
<http://geology100online.geology-guy.com>
<https://sdccd.instructure.com> (Canvas)
 Phone/text: (don't like it – please use E-mail)
Course Syllabus:
 The latest is always on the "unofficial" web site, and in Canvas
Office Hours:
 "Office" Hours: Monday evenings, 7-9 PM, (or by request) using Zoom... (send me an email – if I'm not busy, I'd be glad to help!)

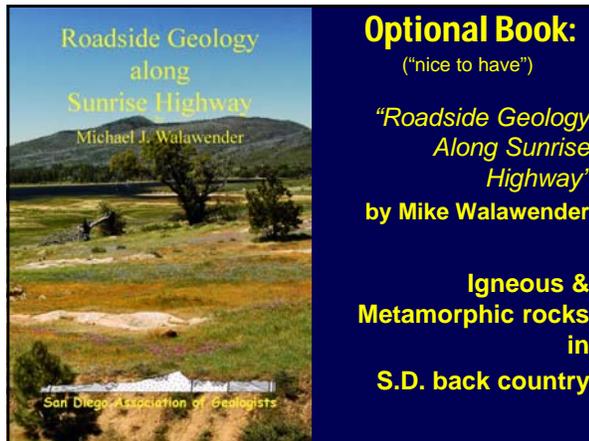
Teaching Philosophy
 I don't consider myself a teacher. I can't **teach** you anything. My goal is to encourage you to **learn**. Think of me as a cheerleader...
 I don't **give** grades. I just **keep score**. **You** are responsible for your success.
 Note that geology is a highly **interdisciplinary** field of study.
Lesson 1:
Earth - it's all one thing!

Recommended Textbook:
 "Earth" (12th edition)
 by Tarbuck, Lutgens & Tasa
 available in Miramar College Bookstore, online (11th edition OK)

Required Canvas Plug-in:

Modified "Mastering Geology"
 Only available in Miramar College Bookstore, or through Canvas
 See instructions (including PowerPoints/Videos/PDF's) for more info

Optional Book:
 ("nice to have")
 "Rise and Fall" by Pat Abbott
 available in finer bookstores everywhere, Online
 Sedimentary Rocks along San Diego Coast



Optional Book:
("nice to have")

"Roadside Geology Along Sunrise Highway"
by Mike Walawender

Igneous & Metamorphic rocks in S.D. back country



Unlikely Field Trips:
Tourmaline Beach, among others

Student Learning Outcomes "SLO's"

- Students will be able to:
 - ☒ Differentiate among the 3 major types of plate boundaries and recognize their characteristic geologic features.
 - ☒ Identify common rock-forming minerals by their diagnostic properties.
 - ☒ Classify rock strata, faults and intrusions by age, using relative dating techniques.

SoCal Regional Geology

- One of the best places in the nation to study Geology
 - ☒ **San Andreas Fault ZONE**
- Living laboratories:
 - ☒ Rose Canyon fault (and others)
 - ◆ Mission Bay, S.D. Bay, Mount Soledad
 - ☒ Santiago Peak volcanics
 - ☒ Marine sediments exposed in sea cliffs
 - ☒ Peninsular Ranges Batholith
 - ☒ Anza Borrego Desert State Park
 - ☒ Salton Buttes
 - ◆ Live volcanoes at our doorstep!

What Will I Learn?

- what geology is and what geologists do.
- an appreciation of the immensity of geologic time
 - ☒ punctuated by instantaneous catastrophic events such as earthquakes, tsunamis, floods, landslides and volcanic eruptions
- an understanding of how a variety of minerals and rocks are produced in the earth's crust.
- the geologic origins of important mineral resources and the distribution of these resources on the earth.
- an appreciation of how much we have learned about geologic processes since I began my geological studies fifty-five (55!!!) years ago.

What Will I Learn? (continued)

- ☒ Mountain-building and opening of ocean basins
- ☒ Bizarre sea creatures that live at underwater volcanic vents
- ☒ Waves and coastal hazards
- ☒ Earthquakes in some surprising places...
- ☒ Supervolcanoes capable of rapid climate change
- ☒ How to use Internet resources to keep up to date on Earth changes
- ☒ Global climate changes through time
- ☒ ... and more!

Syllabus Summary

- PowerPoint presentations are only outlines
- You paid big bucks for the book – use it!
 - ✗ End-of-chapter materials are useful (summaries, review questions, key terms)
 - ✗ Within chapters, additional items are added:
 - ◆ End of chapter:
 - “Concepts in Review”
 - “Give it some thought”
 - ◆ “Eye on Earth” boxes
 - ◆ “Concept Check” boxes
 - ◆ Graphics in general – visualization is fundamental

Online : benefits vs. drawbacks

- Big benefit: freedom!
- BUT...
 - ✗ You are your own boss...
 - ✗ Self-discipline required
 - ✗ Attention to details
 - ✗ Keeping up with the schedule
 - ✗ Reading comprehension
 - ✗ Writing skills

Canvas (Blackboard replacement)



This will be my first class using this new software. Be patient with the OLD man (born in 1945, do the math...)

I used to be a software engineer. My mantra was “if it ain’t intuitive, it’s broke!”...

Also I’m a guy. General philosophy: if it’s good software, it shouldn’t need any stinkin’ instructions!
</rant>

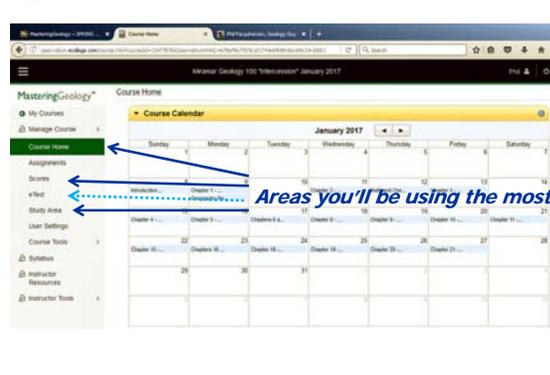
I hope that Canvas will be better than Blackboard was – fingers are crossed!

MasteringGeology Home

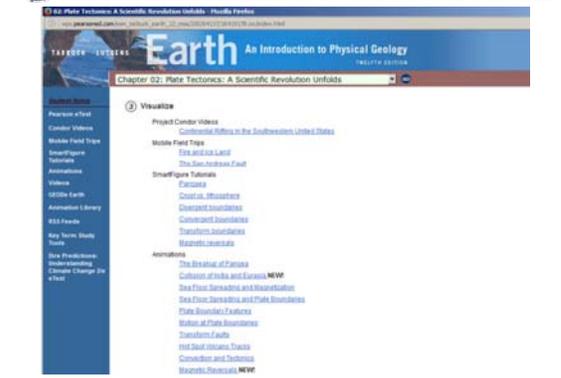
(accessed through Canvas → MyLab and Mastering)



MasteringGeology Home



MasteringGeology Study Area



Focus On Concepts

Earth

An Introduction to Physical Geology

TWELFTH EDITION

Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds

Home > Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds > Student Home > Focus on Concepts

Students Home

Pearson e-Text

Conder Videos

Mobile Field Trips

SmartFigures

Tutorials

Animations

Videos

GEODE Earth

Animation Library

RSS Feeds

Key Term Study Tools

Over Practitioner Understanding

Climate Change 2e e-Text

- Discuss the view that most geologists held prior to the 1960s regarding the geographic positions of the ocean basins and continents.
- List and explain the evidence presented by Wegener to support his continental drift hypothesis.
- Discuss the two main objections to the continental drift hypothesis.
- Identify Earth's major plates on a map and list and describe the three types of plate boundaries.
- Sketch and describe the movement along a divergent plate boundary that results in the formation of new oceanic lithosphere.
- Compare and contrast the three types of convergent plate boundaries and name a location where each type can be found.
- Describe the relative motion along a transform fault boundary and be able to locate several examples on a plate boundary map.
- Summarize the evidence used to support the plate tectonics theory.
- Describe two methods researchers use to measure relative plate motion.
- Discuss what is meant by plate-mantle convection and explain two of the primary driving forces for plate motion.

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Visualize:

Earth

An Introduction to Physical Geology

TWELFTH EDITION

Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds

Home > Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds > Student Home > Visualize

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Climate Change 2e e-Text

Project Conder Videos

[Continental Drift on the Southwestern United States](#)

Mobile Field Trips

[Dix and Ice Land](#)

[The San Andreas Fault](#)

SmartFigure Tutorials

[Continents](#)

[Crust vs. Lithosphere](#)

[Convergent Boundaries](#)

[Convergent Boundaries](#)

[Transform Boundaries](#)

[Transform Boundaries](#)

Animations

[The Birth of France](#)

[Continents of the Past and Europe, NEW](#)

[Sea Floor Spreading and Magnetization](#)

[Sea Floor Spreading and Plate Boundaries](#)

[Plate Boundaries Features](#)

[Hotspots at Plate Boundaries](#)

[Transform Faults](#)

[Hot Spot Volcano Tracks](#)

[Convection and Tectonics](#)

[Marine Research, NEW](#)

Read (e-text – if you opt in...)

Earth

An Introduction to Physical Geology

TWELFTH EDITION

Chapter 01: An Introduction to Geology

Home > Chapter 01: An Introduction to Geology > Student Home > Read (e-text – if you opt in...)

Students Home

Pearson e-Text

Conder Videos

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Key Term Study Tools

Over Practitioner Understanding

Climate Change 2e e-Text

2 Read

[Chapter 01: An Introduction to Geology](#)

3 Visualize

SmartFigures

[Geologic Time](#)

[The Nebular Theory](#)

[Earth's Layers](#)

[The Rock Cycle](#)

[Shields, platforms, and mountain belts](#)

GEODE Earth

Visualize: Project Conder Videos

Earth

An Introduction to Physical Geology

TWELFTH EDITION

Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds

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Key Term Study Tools

Over Practitioner Understanding

Climate Change 2e e-Text

Intracontinental volcanism

Zone of partial melting

Mobile Field Trips

Earth

An Introduction to Physical Geology

TWELFTH EDITION

Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds

Home > Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds > Student Home > Mobile Field Trips

Students Home

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Climate Change 2e e-Text

Visualize: "SmartFigures"

Earth

An Introduction to Physical Geology

TWELFTH EDITION

Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds

Home > Chapter 02: Plate Tectonics: A Scientific Revolution Unfolds > Student Home > Visualize

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Climate Change 2e e-Text

SmartFigures are perfect for the exclusive use of students and instructors using the 12th Edition of Earth: An Introduction to Physical Geology, by Lutgens, Tarbuck, and Tasa, and the 10th Edition of Foundations of Earth Science, by Lutgens, Tarbuck, and Tasa. All art Copyright 2014 Dorland Tasa.

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Visualize: Animations

The Breakup of Pangaea

The animation begins with a world map that shows Earth's current distribution of continents and plates of the Mesozoic.

Notice that most plates contain a whole continent or a portion of one or act as a single region of one. As a result, most plates include both continental and oceanic lithosphere.

Also notice that most plate boundaries between big green blocks do not follow the edges of continents.

Green arrows indicate the general direction of the plate movement. Plates are moving away from each other at mid-ocean ridge spreading.

Legend: Spreading ridge offset, Subduction zone, Motion of plate

Chapter Quizzes (practice)

Chapter 01: An Introduction to Geology

Home > Chapter 01: An Introduction to Geology > Student Home > Chapter Quiz

This activity contains 20 questions.

- Which of the following are accurate definitions of physical geology and historical geology?
 - Physical geology examines the materials composing Earth and seeks to understand the many processes that operate beneath and upon its surface. Historical geology documents the major discoveries, scientists, and development of geologic thought.
 - Physical geology examines only the physics of Earth materials. Historical geology seeks to understand the origin of Earth and its development through time.
 - Physical geology examines the materials composing Earth and seeks to understand the many processes that operate beneath and upon its surface. Historical geology examines the geologic period that covers human history.
 - Physical geology examines the materials composing Earth and seeks to understand the many processes that operate beneath and upon its surface. Historical geology seeks to understand the origin of Earth and its development through time.
- According to the textbook, understanding Earth is challenging because our planet is a _____ body with many interacting parts and a complex history.
- A natural hazard is a natural process that endangers humans.

True

Summary

- Keep up to date!
 - check 'Announcements' section in Canvas
- Canvas and the unofficial web site have links to other resources
 - Videos
 - PowerPoints
 - Web-links
 - And more!
- Be curious!

Summary

- Most of the learning will occur in MasteringGeology
 - For each chapter, there will be a:
 - Homework assignment (~15 to 45 points)
 - Use the Study Area for more information
- Things that will be submitted into Canvas:
 - Syllabus Quiz (10 points) *complete before "Drop" date*
 - Writing and/or Discussion Assignments (200 points)
 - SLO Test (end of semester, 10 points)

Geology 100 Grades

Weighted Percentage

A (superior effort):	90 – 100%
B (better than average):	80 – 89%
C (average):	68 – 79%
D (below average):	55 – 67%
F (failing):	< 54%

Tentative Grades

Mastering homework:	500 points
Writing assignments (3):	400
Syllabus Acknowledgement:	10
SLO Quiz:	10
Total: 920 points	



● **PLAGIARISM**

- ❑ Ugly word, even uglier deed!
- ❑ Look it up – it’s stealing...
- ❑ It’s easy to copy and paste from various sources, which makes it easy to detect!
- ❑ “cheaters never prosper”

● ‘nuff said...



If you don't understand, please ask!

(in a timely fashion)

