Oakland University *College of Arts & Sciences* *Department of Physics*

PHY 106, Earth Science/GEO 106, Physical Geography
4 Credit Hours
Summer 2014 (Session I)
THIS IS AN ONLINE COURSE

Instructor: Kapila Clara Castoldi **Office:** 162 Hannah Hall
Contact: castoldi@oakland.edu (preferred) **Phone:** 248-370-4870
Virtual Office hours: upon reques request – by phone or Skype audio/video conferencing
Course Management System: Moodle

Course (Catalog) Description: The Earth: its structure, history, and the geography of its surface. *Topics include:* Minerals and Rocks, the Rock Cycle; Geologic Time; Plate Tectonics, Earthquakes and Earth's Interior, Volcanoes, Mountains; Atmosphere, Oceans, Rivers, Glaciers, Deserts; Energy Resources; the Solar System; Geology of the other Planets and their Moons.

Prerequisites: None

General Education Learning Outcomes: This course satisfies the university general education requirement in Natural Science and Technology (NST) Knowledge Exploration area.
The learning outcomes for NST courses state that the student will demonstrate:

- Knowledge of major concepts from natural science or technology, including developing and testing of hypotheses; drawing conclusions; and reporting of findings through some laboratory experience or an effective substitute (Laboratory experiences are met by either a limited number of interactive experiences, collecting and interpreting raw data, or other effective experiences such as a virtual laboratory). Requires at least 3 laboratory experiences during the course.
- How to evaluate sources of information in science and technology.

In addition to the general-education learning outcomes, this course also includes the crosscutting capacity of Critical Thinking.

Course Goals and Objectives: The course's main focus is the exploration of the dynamics of Earth's Geologic Systems which contribute to the continuous shaping of its surface and to sustain life on the planet: the Hydrologic System and the Tectonic System. The historical aspect of geology will also be examined: how our present is affected by our past and how the present will shape the future. The role of people – planet relationship will be discussed within the contest of the planet's Natural and Energy Resources. A comparison with the geology systems of the other planets and moons of our Solar System is added to gain further insight on the geologic evolution of our planet and also to explore the possibility of past/present/future existence of Life elsewhere in the solar system. The course will also introduce basics of magnetism, heat and mechanisms of heat transportation, waves and their propagation.

A number of tools will be utilized to aid and deepen the understanding of concepts:

- ***Case Studies*** – to learn about models in Earth Science, how to test and apply these to particular situations, and also to analyze and discuss collected data. These will substitute the in-class Laboratory experiences
- ***Online Quizzes*** – for chapter review
- ***GEODe Earth*** – short online lessons meant to consolidate the student's understanding of main concepts
- ***Interactive animations, Smart Figures*** and ***Give it Some Thought*** coaching activities
- ***Video Library*** – a series of twelve, 20 min videos will help reinforce and visualize the course's fundamental concepts

When you complete this course, you will be able to:

- Identify the different regions inside the Earth, and understand the scientific data that allows scientists to know the properties of each region.
- Explain the origin of the Earth's magnetic field, and understand the evidence in support of past magnetic reversals.
- Become familiar with the main features and properties of the sea floor, including mid-ocean ridges and oceanic trenches.
- Realize that the Earth's surface consists of moving plates, and that most interesting geological activity occurs at the boundaries between these plates.
- Analyze the evidence supporting the hypothesis of continental drift and examine how scientists used the scientific method to test this hypothesis.
- Identify three main types of plate boundaries and explain the role of each type of boundary in the theory of plate tectonics.
- Calculate the rate of plate tectonic motion based on measured magnetic field anomalies in the sea floor.
- Relate the location and distribution of mountain belts, volcanoes, earthquakes, and coastal features to plate boundaries.
- Identify types of faults and explain under which conditions each originates.
- Know the history of several of the Earth's largest recent earthquakes, volcanic eruptions, mass wasting events, tsunamis and floods.
- Determine the location of an earthquake from seismic wave data.
- Determine the relative age of rock formations using the principles of superposition and cross-cutting relationships.
- Calculate the absolute age of a rock using isotopic dating.
- Examine the evidence supporting the hypothesis that a meteor impact caused the extinction of dinosaurs.
- Understand the periodic table and how atoms bond to form molecules.
- Distinguish the structure of several silicate minerals.
- Describe the rock cycle and the three main types of rocks.
- Understand how volcanic gases can influence the Earth's climate.
- Appreciate the impact of dams on rivers.
- Know the relative amount of water in the oceans, glaciers, ground, lakes, and rivers.

- Realize what an aquifer is and the implications of over pumping water from one.
- Understand how the worldwide air circulation influences the location of deserts.
- Examine the evidence supporting the hypothesis that glaciers once covered much of the Earth, and show how experiments tested this hypothesis.
- Learn how the most recent ice age created the Great Lakes and other geological features in Michigan.
- Know the major sources of energy in the United States.
- Learn how the burning of hydrocarbons may influence global warming.
- Realize how limited is the supply of oil, and examine possible alternative sources of energy.
- Compare the geologic nature and evolution the Earth to that of the Moon, Venus and Mars.

Textbook: Tarbuck-Lutgens – Earth - An Introduction to Physical Geology – Edition 11e
with Mastering Geology Access Kit and e-Text
Pearson – ISBN: 978-0321813930

Available options for purchasing the textbook:

- You may purchase the books at
  - Campus bookstore – Barnes & Noble – at the Oakland Center
  - Textbook Outlet – 2592 N. Squirrel Rd. (@Walton)
- You may purchase the textbook online, directly from the publisher at

  www.mypearsonstore.com

  Search the book by Author: 'Tarbuck'. Then click on 'Earth', 11th edition.

  Here various options are available, progressively cheaper:
  - Regular, bound textbook
  - Unbound, loose leaf book
  - E-book

Lecture Notes: Lecture notes will be available online on ***Moodle***.
These will serve both as guidelines for the study of the chapters on the textbook and as chapter summary.

Recorded Lectures: For each chapter my lecture recordings are available on ***Moodle*** in the form of Power Point with voice-over.
It is suggested that you print the power point, so that you can take notes as you are listening to the online lecture.

Case Studies: A number of Case Studies will be assigned to develop critical thinking, to learn how to analyze data, and utilize collected sets of data to test models. These will substitute the mandatory Lab experiences and will be available online on ***Moodle***.

The Case Studies are worth 20% of the final grade.

Quizzes: This homework consists of online Reading Questions, Tutorials, Interactive Animations, Smart Figures, and other coaching activities for each chapter. These are in the form of multiple choice questions intended to help the students familiarize with the concepts introduced by the course and to help them gauge their understanding of the material.
The quizzes are found on the **MasteringGeology.com** website.
Please see the attached sheet on '*How to Access the Online Quizzes*'.

No late homework is accepted after one week from the due date. For each late day there will be a 10% penalty.

The Quizzes are worth 15% of the final grade.

Chapter Questions: For each chapter a few critical thinking questions will be posted on Moodle. You are asked to work in groups of three and submit the answers by e-mail to my grader.

No late tutorials are accepted after one week from the due date. For each late day there will be a 10% penalty.

The Critical Thinking questions are worth 15% of the final grade.

Videos: A series of twelve, 20 minutes videos is available on Moodle. These will help to reinforce and visualize the course's fundamental concepts.

Exams: There will be three online exams in the form of multiple-choice questions.
The exams will take place on the **MasteringGeology.com** website.
These exams and will have the duration of 1 hour and may be taken any time of the day on the specified date:

Exam #1 – online	Chapters 1, 2, 3, 4, 5
Exam #2 – online	Chapters 6, 7, 8, 9, 11, 12
Exam #3 – online	Chapters 13, 14, 16, 17, 18, 21, 23

Note: You have to take all three exams in order to be able to pass the course.

The Exams are worth a total of 50% of the final grade.

(Exam 1: 15%, Exam 2: 20%, Exam 3: 20%)

Gradebook: All grades will be posted on Moodle's Gradebook.
The Gradebook will be updated regularly as new grades become available.

Final grade: Grades will be based on the following percentages:

*** Case Studies:**	**20%**
*** Quizzes:**	**15%**
*** Chapter Questions:**	**15%**
*** Online Exams:**	**50%**

Grading:

A	(4.0)	total score: > 95%
A	(3.6 - 4.0)	86 - 95 %
B	(3.0 - 3.5)	73 - 85 %
C	(2.0 - 2.9)	60 - 72 %
D	(1.0 - 1.9)	50 - 59 %

Add/Drops: The University add/drop policy will be explicitly followed. It is the student's responsibility to be aware of the University deadline dates for dropping the course.

Special Considerations

Students with a documented learning or physical disability must contact the Office of Disability and Support Services, 121 North Foundation Hall, (248) 370-3266, and inform the instructor of special needs during the first week of classes. For more information, visit http://www.oakland.edu/dss.

Policy on Academic Misconduct

The University's regulations that relate to academic misconduct will be fully enforced. Any student suspected of cheating and/or plagiarism will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of academic misconduct in this course may receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. Students found guilty of academic misconduct by the Academic Conduct Committee may face suspension or permanent dismissal. The full policy on academic misconduct can be found in the General Information section of the Undergraduate Catalog.

Excused Absence Policy

University excused absences applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee. For the excused absence policy, see http://www.oakland.edu/?id=6850&sid=175.

Communication:

Instructor → Student:

Communications from the instructor will happen via **News Forums** on **Moodle** (forwarded by Moodle to your Oakland e-mail account.)

The student is expected to be familiar with Moodle. The e-Learning department offers introductory sessions at the beginning of each term. Go to:

http://moodle/oakland.edu

Click on Moodle under '*Teaching Tools*' on the left.

Click on '*Moodle Student Orientation*' under '*Technical Support*'.

- Each student is expected to login at least twice a week on Moodle.
- A Weekly format will be used in Moodle, so that guidelines for the homework, virtual office hours and all other activities will be posted week by week. This means you will have to scroll all the way down to check each week of the course.

Student → Instructor:

Contacts with the instructor will happen primarily e-mail at

castoldi@oakland.edu

The ***subject*** of your e-mail should state the course & reason of your e-mail,

e.g. '***Phy 106 – your lastname – a few explanatory words'***

I will read my e-mail twice a day on weekdays, and once a day on the weekend.

Student → Student:

Contacts among students may happen in a number of ways:

- '***Getting to know each other***' Forum – setup on Moodle so that each students can share some basic information about himself/herself with others and the instructor. Participation in this forum is ***mandatory***.
- ***Skype***. An audio/video conferencing session can also be requested. Please email me and I can setup a session for your group.

Virtual Office Hours:

The student-instructor communication can happen also on **Moodle,** via **Elluminate**.

If necessary, we can setup a ***phone call*** or ***Skype*** meeting time to solve group issues.

For **technical issues**, please contact:

Moodle:

Read the documents on the e-Learning & Instructional Support (e-LIS) website.

In particular, the '***Welcome to the Online Student Orientation'***:

http://www2.oakland.edu/elis/SO_index.cfm

If this doesn't help, contact the e-LIS at **248-370-4566**

You may also submit a Help Request Form to e-LIS:

http://www2.oakland.edu/elis/help.cfm?LMS=2

Online Quizzes:

Go to the **www.masteringeology.com** website

- Click on the 'Support' tab.
- Then click on 'Support for Students'.
  - You may read answers to FAQ
  - Contact Support via e-mail or
  - Have a live-chat.

Important Note from the Instructor:

Online courses have numerous advantages, including flexibility for those with a busy schedule.
On the other hand I wish to bring to your attention that **not everybody is fit for an online course**.
Remember that to be fit for an online course,

- You must be able to **work independently.**
- You must feel quite **comfortable** working **with computers**.
- You must be **self-motivated** and **disciplined** in order to access all assignments in a timely manner, actively participate in discussion panels and study the textbook in a timely manner.
- You must be able to **follow directions**. Most online activities are announced with written directions. It's important that you understand what the instructor requires.
- You must be **organized**. For example, create a folder on your computer for the class. Within it create other folders for each of the class activities.

Last but not least, **never** wait until the last minute to submit an assignment. Working with computers means that the internet may be down when we least expect it, making us miss an important deadline. To prevent this, we must work ahead of deadlines.

HOW TO ACCESS THE ONLINE HOMEWORK QUIZZES

The textbook is packaged with the ***Student Access Kit to Mastering Geology.***

If you purchased a used textbook, you may choose to purchase the Access Kit online at:

www.MasteringGeology.com

Day One: Register for the Class

Go to the Mastering Geology website: **www.MasteringGeology.com**

Click on **Support & Training** and download the PDF file **Student User Guide**. You may want to watch also the short videos on *How do I register?* and *Is my computer setup for Mastering?*

- Back to the Home page, click on **Register** and then **New Students**
- Do you have the Student Access Code from the Student Access Kit inside your textbook? Click **Yes or No** (in which case you may purchase it online)
- Do you have a Pearson Education Account? Select **No**, then
    - create your ***Login Name*** (last name, first name please) and ***Password***
    - enter the ***Mastering Geology Access Code*** (found inside the Student Access Kit)
    - enter your personal information
    - choose the *school location* (Zip: 48309)
    - click on '**Next**': a 'Confirmation & Summary' page will appear.
- Click on '**Log In Now**' – Now you can Login as a Returning User.
    - enter the ***Course ID***: **PHY106SU14CASTOLDI** (Note: 106 & 14 are numbers!)

Please notice: If you have a Pearson account already, please check the information posted on the following pages.

To access the Homework:

Go to the Mastering Geology website: **www.masteringgeology.com**

Step 1: Login
Step 2: Click on **Assignment List**
Step 3: Choose the homework chapter, e.g. 'Chapter 1'
Step 4: Answer all the questions
Step 5: Submit for grading

Please Note:

If you do not enter the Class ID, your grade will not appear on my Gradebook!

Mastering Geology: Student Registration

Note: If you have joined a MasteringGeology course before with the same textbook,, save time by following the guide for joining another course found under the STUDENT heading at www.masteringgeology.com > *Tours & Training> Getting Started*.

What You Need:

- ✓ **A valid email address**
- ✓ **A student access code**
  (Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringgeology.com.) **DO NOT THROW AWAY the card that came in your textbook!**
- ✓ **Your School Zip Code:**_____
- ✓ **A Course ID:** _____ (Provided by your instructor.)

1. Register

- Go to www.masteringgeology.com and click **Students** under **Register**.
- To register using the student access code inside the MasteringGeology Student Access Code Card/Kit, select **Yes, I have an access code**. Click **Continue**

  –OR– *Purchase access online*: Select **No, I need to purchase access online now**. Select your textbook, whether you want access to the eText, and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. (The purchase path includes registration, but the process is a bit different from the steps printed here.) **Be sure to choose the RIGHT version of your textbook!**

- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under "Do you have a Pearson Education account?"
- Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Sign In Now** or return to www.masteringgeology.com later.

2. Sign In

- Go to www.masteringgeology.com.
- Enter your Login Name and Password that you specified during registration and click **Sign In**.

3. Join Your Instructor's Online Course and/or Open Self-Study Resources

When you first Sign In, you'll be asked to do one or more of the following:

- **Join a Course** by entering the **MasteringGeology Course ID** provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringGeology course later. When you join a course, you may also be asked for a Student ID (your professor determines this, follow the on-screen instructions).
- If you do not have a Course ID, you can **Explore the Study Area** or **Launch Your eText**, if these resources are available for your textbook.

For a video demo from your Smart Phone, scan here:	**For additional support go to:**
	http://www.masteringgeology.com/support, • System Requirements/Browser suggestions • Answers to Frequently Asked Questions • Registration Tips & Tricks video • Additional contact information for Customer Support, including Live Chat

How to Join Another MasteringGeology Course

To join another MasteringGeology® course, see which column below applies to you. You can be in up to four MasteringGeology courses, whether at the same time or one after another.

If you CAN STILL LOG IN to a MasteringGeology course **-AND-** **Your next MasteringGeology course uses the same textbook (including its edition) or the same resource, such as Virtual Lab, as the original course:**	**If you CANNOT LOG IN to a MasteringGeology course anymore** **-OR-** **If your next MasteringGeology course uses a different textbook or different resource, such as Virtual Lab, than your previous course:**
Follow the instructions below. You don't need to register again (i.e., redeem an access code or buy access online). *Note:* Your instructor controls the end date for each MasteringGeology course. You can no longer log in to a course after its end date.	**Follow the instructions in the student guide for getting started** (available from www.masteringgeology.com > Tours & Training > Getting Started). You will need to redeem an access code or buy access online. *Tip:* To help manage your Pearson resources, use the same Pearson user account (as identified by your Login Name and Password) for all of your Pearson products.

Log in to a MasteringGeology course

1. Go to www.masteringgeology.com.
2. Enter your Login Name and Password and click **Log In**.

Join another MasteringGeology course and open available self-study resources

1. Click **My Courses** in the upper left.
2. Choose **Join Another Course**.
3. Enter the Course ID and click **Continue**.
   - *Don't have the Course ID yet?* Get this information from your instructor.
   - *If the Course ID you entered applies to a different book or another resource for which you don't have access yet:* You will be asked to either redeem an access code or buy access online. Follow the on-screen instructions.
4. If asked, enter your Student ID according to the instructions provided and click **Continue**.
   - *If you want to consult with your instructor first:*
     You can add your Student ID later by clicking your name link in the upper right.

You should see the Course Home page of the additional course. From now on, logging in will take you to the Course Home page of the MasteringGeology course you last worked in.

- *To switch your view among MasteringGeology courses:*
  My Courses > **Switch to a Different Course** menu.
- *To check out self-study resources:* Click **eText** and/or **Study Area**, as available.

Support

Go to the Support area of www.masteringgeology.com, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video

Contact information for Support, including Live Chat

PHY 106 – WEEKLY SCHEDULE – SUMMER 2014

Week 1 – May 5 – 11

Chapter 1: Introduction
Chapter 2: Plate Tectonics
Chapter 3: Matter and Minerals

Due May 10:

- Ch 1 & 2 Online Quizzes
- Ch 1 & 2 Chapter Questions

Week 2 – May 12 – 18

Chapter 4: Igneous Rocks
Chapter 5: Volcanoes

Due May 17:

- Ch 3 & 4 Online Quizzes
- Ch 3 & 4 Chapter Questions
- Case Study: Hot Spots and Plumes

Week 3 – May 19 – 25

Chapter 6: Weathering
Chapter 7: Sedimentary Rocks
Chapter 8: Metamorphic Rocks

Due May 24:

- Ch 5, 6 & 7 Online Quizzes
- Ch 5, 6 & 7 Chapter Questions

Sunday, May 25 - Online Exam # 1: Chapters 1 - 5
on MasteringGeology.com; 1 hour long – take any time today

Week 4 – May 26 – June 1

Chapter 9: Geologic Time
Chapter 11: Earthquakes
Chapter 12: Earth's Interior

Due May 31:

- Ch 8, 9 & 11 Online Quizzes
- Ch 8, 9 & 11 Chapter Questions
- Case Study: Earthquakes and Plate Boundaries

Week 5 – June 2 – 8

Chapter 13: Divergent Boundaries
Chapter 14: Convergent Boundaries
Chapter 16: Running Water

Due June 7:

- Ch 12, 13 & 14 Online Quizzes
- Ch 12, 13 & 14 Chapter Questions

Sunday, June 8 - Online Exam # 2: Chapters 6 – 9, 11, 12
on MasteringGeology.com; 1 hour long – take any time today

Week 6 – June 9 – 15

Chapter 17: Groundwater
Chapter 18: Glaciers

Due June 14:

- Ch 16 & 17 Online Quizzes
- Ch 16 & 17 Chapter Questions
- Case Study: Florida Sinkholes

Week 7 – June 16 – 22

Chapter 21: Global Climate Change
Chapter 23: Energy and Mineral Resources

Due June 21:

- Ch 18 & 21 Online Quizzes
- Ch 18 & 21 Chapter Questions
- Case Study: Global Climate Change, the role of the US

Due June 22:

- Ch 23 Online Quiz
- Ch 23 Chapter Questions

Sunday & Monday, June 22, 23 - Online Exam # 3: Chapters 13, 14, 16 – 18, 21, 23
on MasteringGeology.com; 1 hour long – take any time of the day