

**Syllabus GLG 101IN
CRN 23440**

**Pima Community College, West Campus, Tucson, AZ
Course: Introduction to Physical Geology - Spring 2012
Tues.-Thurs. @ 5:40 - 8:20
CREDITS: 4 units (integrated lecture & laboratory)
CLASS LOCATION: F Building - F 136**

**Instructor: Dr. Jan C. Rasmussen
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website = <http://www.janrasmussen.com>**

**West Campus Faculty Resource Center phone 520-206-3241
Office Hours: by appointment and after class**

**First Day of class: Tues. Jan. 17, 2012
Add date: Jan. 17-23, 2012
Drop/Refund date: Jan. 30, 2012
Withdrawal deadline: April 6, 2012
Final Exam date: May 10, 2012
Last day of class: May 10, 2012
Grades posted: May 19, 2012**

Instructional Materials Required:

Textbook: "Physical Geology", by Plummer, Carlson & McGeary. This may be purchased at the Campus Bookstore. There will be extensive use of the textbook, such as answering questions in the back of the chapters, consulting it for mineral identification, etc.

Or:

Exploring Geology: Reynolds, Johnson, Kelly, Morin, and Carter. McGraw-Hill, 1st or 2nd Edition. The chapter numbers are different from that used in the class schedule.

It is also very advisable to have access at home to a computer with fast internet access in order to complete the term paper, power point presentation, Google Earth exercises, and other research. We will make use of classroom computers frequently.

Optional Lab Manual: Exercises in Physical Geology lab manual, Hamblin, Howard (Spiral-bound). Prentice-Hall Engineering/Science/Mathematics, 12th Edition: **This will be supplied in the laboratory classroom, but cannot leave the classroom.** Laboratory supplies in the classroom include minerals, rocks, protractor, compass, ruler, 3-D glasses, stereo glasses.

Note: The Pima Community College Bookstore can be accessed and books ordered via the Internet at www.pima.bkstr.com.

Course Description: Introduction to the physical aspects (processes and materials) of the Earth's crust. The coursework includes scientific measurements, maps, and the scientific method; hands-on identification and assessment of rocks and minerals; and introduction to geology, earth composition, surface processes, subsurface processes, investigative tools, geologic structures, geologic resources, and earth history. The course also includes a field trip to observe and interpret geologic processes in a natural setting. IN is the integrated version of the course with the lecture and lab taught simultaneously.

Earth processes include earthquakes, volcanic activity, weathering, mass wasting, and more. Earth materials include minerals, rocks, soil, water and other fluids. Classes will consist of lectures, movies, and lab exercises relative to the topics.

Performance Objectives:

Upon completion of the course, the student will be able to do the following:

1. Perform activities to demonstrate improvement in the general education goals of communication and critical thinking.
2. Demonstrate the ability to measure mass, length, and volume in metrics using appropriate scientific measurement tools.
3. Use and interpret geologic maps and cross-sections.
4. Use the scientific method to design and conduct an experiment.
5. Discuss the historic development of geologic concepts.
6. Describe the scope of geologic time and the nature of geochronometric measurements.
7. Describe the principles of plate tectonics and their contribution to understanding Earth's history.
8. Describe the character of the earth's interior and how this is determined.
9. Identify and assess the major rock types and their constituent minerals and properties using hands-on field methods such as hardness, cleavage and their relationships to one another.
10. Explain the interactions of the various materials and processes of the "rock cycle".
11. Describe the various processes associated with igneous rock formation.
12. Describe the various processes associated with sediments and the formation of sedimentary rocks.
13. Describe the various processes of metamorphism and the formation of metamorphic rocks.
14. Describe the oceans and the hydrologic cycle.
15. Describe the various surface processes, such as weathering, soil formation, erosion, transport, deposition, weather, and climate, which affect the Earth's surface.
16. Discuss groundwater and surface water resources with respect to quality, storage, use, and depletion.
17. Describe the subsurface conditions and processes within the Earth, including earthquakes, heat, and pressure.
18. Relate common geologic structures to the forces and processes that create them and modify the Earth's surface topography.
19. Discuss geologic resources and how humans have used and altered them.
20. Describe the geologic history of the Earth and discuss its relevance to human history.
21. Make observations of geologic formations and structures in a natural, outdoor setting and explain the forces and processes that created them.
22. Observe and identify rocks and minerals in a natural, outdoor setting.

Course Expectations: GLG 101IN is NOT a self-paced course.

Attendance: This is a semester course requiring approximately 6 hours per week of in-classroom instruction and up to 12 hours per week of outside class time reading assignments and completing exercises. Consequently, missing a class means you miss 3 hours of instruction. We will cover a great deal of information in 3 hours. If you don't come to class nearly every class period, you probably will not pass the course. Make every effort to come to class; attendance will be taken and points are given for attendance at each class. If you miss too many classes without making arrangements with the instructor to make up the work, you should drop the class. If you don't drop the class before the deadline, you will get an F for the class.

You are required to sign your name on the attendance sheet at the beginning of each class. Points are given for attendance, and this will amount to enough points to make a difference between a lower and higher grade.

Class Preparation and Policies - Reading Assignments: You are expected to have read the appropriate chapter before coming to class. You may be tested at the beginning of class on the chapter we will be

studying, so be sure you read the chapter before coming to class. Your text is an excellent reference with relevant and useful information. Please follow the schedule posted on my website without specifically being assigned any reading.

Electronic Devices. Cell phones must be turned off during class time and cell phone texting during class is prohibited, as is use of portable computers during class lectures, unless specific permission is given or is needed for the laboratory exercise. There will be considerable use of computers to complete the lab exercises, particularly with Google Earth exercises using the classroom computers.

Exams: There are **three lecture exams** during the semester and **three or four lab exams**. The exams are designed to enhance the learning experience, as well as determine what you have learned. There will be an extensive list of review questions handed out in class before the exam and you will have the review topics as questions the week before the exam. The exam may include multiple-choice, true and false, essay and matching questions. These are closed book exams, and no electronic devices are allowed during the exam.

Oral Presentation and Term Paper: A term paper will be due at the end of the semester; this paper will be at least 5 pages in length (double spaced, typed), with a minimum of 5 references (three of which can be internet references). You will choose the topic, which will be the same for the term paper and presentation. After about 4 weeks in the classroom you will select a topic and provide me with your choice. I expect the paper to be typed and look professional. In addition, you will present the information orally in class in a power point presentation as a 5 minute speech (absolutely not read aloud from your written paper), and then turn the paper in to be graded. You must pick up your term paper after I have graded it or it will be discarded. A digital copy of the power point presentation must be turned into the professor, either by e-mail or download onto a USB device, and may be used on websites.

Lab Exercises: The lab exercises are very important. Lab assignments are generally done during class time. You are expected to work together in small groups, but please do your own work. Allow the others in your group to help you with your thinking processes. Do not copy the work of others. It is the student's responsibility to keep all completed, graded work for the entire semester for verification purposes.

The MyPima course page will have all the blank assignments posted as Word doc's or pdf documents.

Late Assignments: Late assignments will be penalized by losing points for each class period that they are late, unless the absence was excused prior to the absence. Unexcused absences will be penalized. The lab exercises and lecture note questions are due the same day on the following week (if the assignment is done Tuesday, the written work needs to be handed in the following Tuesday).

Field Trips: There is at least one field trip scheduled for the semester. This will be on a Saturday or Sunday, as the days are short this time of year and we will not be able to safely maneuver in the field in the dark. A video is available of the field trip and is shown on PCC TV occasionally throughout the year. There will be a handout provided to you to assist you in completing the field trip report after the field trip. The report can be turned in one week after the field trip. If you miss the field trip there is no way you can make this up. If a student needs a reasonable accommodation to participate in a field trip associated with this course, the student must contact the campus DSR office as soon as possible to ensure a timely evaluation of the request and provision of services. During the spring semester, the students are also required to attend one of the various gem and mineral shows in Tucson during the first two weeks in February.

Films: Videos are one of the best and safest way of observing geological processes in action, such as volcanoes, earthquakes, floods, etc. Many people learn better by seeing things in motion than by listening to lectures. You will write a half page summary of what you learned, your reactions, and interesting information and hand it in after the movie or the next class period.

Class Participation: This is one of the most important aspects of the course. Participation by the students, all of whom have a wealth of personal experience to contribute, considerably adds to the learning by other students in the course. In addition, you will remember concepts better that you have talked about in class.

Grades: The point system for grading means that you must turn in everything you do, even if it is not complete. Every assignment (10-20 points for the hand-in assignment for each class), all field trips, participation, attitude, attendance, lab exercises, lab exams (100 points), term paper (100 points), oral presentation (200 points), lecture exams (200 points each), final exam (200 points), and superior performance in class all provide points. At the end of the semester, your points are totaled and divided by the total assigned points.

The final grade will be based on a percentage of the total points available, with an A= 90% or more, B=80-89%, C=70-79%, D=60-69%, F=less than 60%. As your grade is based on the point system, you can do poorly on the exam and still pass the class. You can do great on the exam and do poorly in the class if you do not turn in all the work. Accurate records of are kept of every class period. Everything is logged and you will get a summary of your total points near the mid-term and near the final exam.

Student Withdrawal "W" Grades: Students may withdraw from class without instructor permission through April 7, 2012. This can be done on-line or by submitting a "Registration Form" at any Pima College Campus. Students who withdraw receive a "W" as a grade. For further information on how withdrawing will affect your academic record or financial aid, please see an advisor or counselor. This grade may be requested by the student only during the first two-thirds of any session and may be given by the instructor on or before the official census reporting date to students who have ceased attending class before that date. Students who stop attending class after this date may receive a grade of "F." W's after the official student withdrawal date will only be given at the instructor's discretion under emergency situations where the student submits a written request. Failure to withdraw from the class by the withdrawal deadline and/or failure to earn enough points for a passing grade are NOT emergency situations.

Incomplete "I" Grades: The incomplete grade (I) is given to the student who is on track all semester but is unable to complete the final portion of the course due to an unforeseen event. A grade of "I" will only be given if all following requirements are met.

- You must have completed at least 80% of the coursework.
- You must provide valid documentation showing a medical or other reason for needing an I grade.

To receive a grade of "I," you must make the request to your instructor in writing and fill out the required forms no later than April 7, 2012. The final decision for awarding an "I" grade rests with your instructor. Being behind or overwhelmed with work is NOT a valid reason for an "I". An "I" grade automatically turns into an "F" if the work is not completed within one year.

"AU" Audit Grades: Auditing a PCC class means that you enroll, attend and do work for the class but do not expect to receive credit or a grade. To audit the class, you need the instructor's permission and signature on an audit request form from any campus admissions office. This form and appropriate payment must be returned to the admissions office for admission. An audit registration cannot be completed until the first day of class. You must complete your audit registration by the end of the add

period for the class you wish to audit. The instructor is not required to grade assignments submitted by students who are auditing the class.

Final Grades: For privacy and security reasons, instructors are advised **NOT** to give grades over the telephone or via email unless the student signs the exception box on the acknowledgment page of this syllabus.

Student's Rights and Responsibilities: Students are expected to abide by Pima Community College's rules and regulations. A summary of the Student's Rights and Responsibilities, including the Student Code of Conduct and the Code of Academic Ethics, is available at <http://www.pima.edu/studentserv/studentrights>. A violation of the Code of Academic Ethics may result in a failing grade in the course and may be subject to further penalties.

Website: Most of the assignments will be posted on the class MyPima site. I will add the exercises to my personal website (www.janrasmussen.com) as we do them. In the meantime, the exercises from previous classes (Physical Geology Fall 2011) are on my website and many of the exercises are the same.

Instructor's Background: Jan Rasmussen, Ph.D.: Previously, I was the Curator of the now closed Arizona Mining and Mineral Museum in Phoenix, Arizona (1502 W. Washington) from 2007-2010. Currently, I am working as a consulting geologist for mining and oil exploration companies, engineering and environmental consulting companies, and governmental organizations. I love teaching and have considerable teaching experience, both at the high school, and college levels (Pima Community College, Cochise College, Austin Community College, and University of Arizona).

I am an expert in Arizona geology, having worked for the Arizona Geological Survey for several years where I co-authored several bulletins and open-file reports for them and the U.S. Geological Survey. I have been active in the Arizona Geological Society as an officer, editor of guidebooks, and organizer of conferences and field trips until 1993 when I finished my Ph.D. at the University of Arizona, with a major in Geosciences (Economic Geology) and a minor in Engineering Geology. I worked as a Project Geologist for Woodward-Clyde Federal Services, a subcontractor for the Department of Energy, on the Yucca Mountain Project in Nevada from 1994 through 1997, where I supervised drilling projects for surface-based testing and managed the natural resources investigation project. Most recently, I was a Senior Geologist for SRK Consulting Inc. (www.srk.com). Additional details about my resume, research, current projects, and publications are on my website at <http://www.janrasmussen.com>.

My educational philosophy emphasizes the team approach with the students being the most essential part of the team. It is the student's job to be curious, ask questions, complete all required work, and grow in awareness, knowledge of the Earth, and perception of the interrelationships between humans and the Earth.

ADA (American Disabilities Act): Pima Community College provides reasonable academic accommodations to those students who qualify under the Americans with Disability Act (ADA). Appropriate medical documentation will be required to determine eligibility. Please contact the West Campus Disabled Students Resource (DSR) office at 206-6688 to begin the accommodation request process. One or more field trips are planned during this course. If you need a reasonable accommodation to participate in field trips, again, please contact the campus DSR office as soon as possible to ensure timely evaluation of your request and possible provision of services.

Plagiarism / academic ethics: Cheating is not acceptable behavior and cannot be tolerated and will result in an assignment failure. **Refer to the Student Code of Conduct** at <http://www.pima.edu/studentserv/studentrights>.

Caveats: The instructor reserves the right to make changes to the syllabus and will notify students of those changes in class. **This Instructor reserves all rights to make changes to this Syllabus, for any and all reasons during the course, but will notify the students of any changes by e-mail, course homepage announcements, My Pima, and/or in-class announcements.**

Approximate Course Schedule: See MyPima or www.janrasmussen.com for revisions.

Day	Date	Lecture Topic	Chapter	Lab Exercise
Tues.	Jan. 17	Introduction, Atoms, Elements	1	Physical Geology Syllabus Student questionnaire , Topographic map exercise
Thur.	Jan. 19	Minerals	2	Mineral Identification
Tues.	Jan. 24	Minerals	2	Minerals Lab exam
Thur.	Jan. 26	Igneous Rocks	3	Igneous Rock I.D.
Tues.	Feb. 31	Volcanoes	4	Volcanoes labs
Thur.	Feb. 2	Weathering & Soils		Igneous Rock Review
Tues.	Feb. 7	Igneous Rock Exam	4, 5	
Thur.	Feb. 9	Sedimentary Rocks	5, 6	Sedimentary Rock I.D.
Tues.	Feb. 14	Metamorphic Rocks	7	Metamorphic Rock I.D.
Thur.	Feb. 16	Sed. & Meta. Rock Review		Sed. & Meta. Rock Lab Exam
Tue.	Feb. 21	Geologic Time, time scale	8	Grand Canyon lab
Thur.	Feb. 23	Rodeo vacation		_No class
Tue.	Feb. 28	Mid-term Exam	1-8	
Thur.	Mar. 1	Mass Movement	9	Landslide Exercise
Sat. or Sun. TBD	TBD 9am-noon	A Mountain trip	Video	A Mountain report
Tue.	Mar. 6	Rivers	10	River Exercise
Thur.	Mar. 8	Groundwater	11	Groundwater Map
Mon-Fri	Mar. 12-16	Spring Break		No class
Tue.	Mar. 20	Glaciers	12	Glaciers Exercise
Thur.	Mar. 22	Deserts	13	Dunes exercise
Tue.	Mar. 27	Oceans	14	Coastline Exercise
Thur.	Mar. 29	Climate Change	14	review
Tue.	Apr. 3	Second Exam		
Thur.	Apr. 5	Earthquakes	16	Earthquake Exercise, info
Tue.	Apr. 10	Geological Structures	15	Geological Map Exercise
Thur.	Apr. 12	_Earth's Interior	17	Structure exercise
Tue.	Apr. 17	Plate Tectonics	18	Plate Tectonics Exercise, lab
Thur.	Apr. 19	Plate Tectonics	19	Plate Tectonics Exercise, lab
Tue.	Apr. 24	Mineral Resources	21	Google Earth exercise
Thur.	Apr. 26	Energy Resources	21	exercise
Tue.	May 1	Planets	22	Earth origin
Thur.	May 3	Presentations	Handout	Presentations
Tue.	May 8	Geologic Hazards		Review
Thur.	May 10	FINAL EXAM		