

GEOL 1403 – PHYSICAL GEOLOGY**SECTION INFORMATION**

Section 010, Synonym 24840
Lecture: Tuesday/Thursday 12:00-1:20 p.m., Room 2222, Cypress Creek Campus
Lab: Tuesday/Thursday 1:30-2:50 p.m., Room 2236, Cypress Creek Campus

INSTRUCTOR INFORMATION

Professor: Meredith Denton-Hedrick
Office Hours: Tuesdays & Thursdays, 3:00 – 4:00 p.m. in CYP Adjunct Faculty Office (2204.4)
See me or email me to schedule a conference outside of regular office hours.
Voicemail: 223-1790 x26216
E-mail: mdentonh@austincc.edu ***Email is the best and fastest way to reach me.***

COURSE DESCRIPTION

Physical geology is the study of the Earth system, minerals, rocks, structural geology, plate tectonics, geologic time, geological processes, and landforms. This course is designed to give a basic understanding of geology and geological techniques for both geology and non-geology majors. **A Saturday field trip will be required.**

PREREQUISITES

One year of high school science. Reading and math proficiency as proven by passing score on Texas Success Initiative (TSI) testing, or being TSI exempt.

COURSE RATIONALE

This course is designed to give a basic understanding of geology and geological techniques for both geology and non-geology majors. Physical Geology serves as the beginning course for geology majors, and introduces basic geological concepts and processes and techniques. At the end, you'll be able to amaze your friends and astound your family with your awe-inspiring knowledge of geology.

COURSE OBJECTIVES

- Review basic concepts of mathematics, chemistry, physics, and biology as applied to geology
- Learn the basic principles of geology and geological processes
- Develop an understanding of the methods geologists use to study the Earth
- Learn to identify common rocks and minerals

STUDENT LEARNING OUTCOMES**Course-Level Student Learning Outcomes**

Upon successful completion of the course, students will be able to:

- Identify common rocks and minerals,
- Construct topographic maps and interpret geologic maps,
- Describe and explain processes and features within the Earth, particularly with regard to plate tectonics and the resulting geologic structures,
- Describe and explain processes operating on the surface of the Earth and the resulting landforms and features

Program-Level Student Learning Outcomes for Geology

Upon successful completion of the geology program, students will be able to:

- describe the scientific method and apply it in a geological context; and
- describe Earth's major systems and explain how they interact; and
- identify common rocks, minerals, and fossils and interpret how they form; and
- describe and interpret the development of landforms and geologic structures; and
- describe the sedimentological, paleoclimatic, tectonic, and biological history of the Earth with a focus on North America; and
- construct and interpret geologic, stratigraphic, and topographic maps, cross-sections, and topographic profiles; and
- explain the plate tectonic theory and its relationship to earth processes, features, and landforms.

General Education Student Learning Outcomes

As a Core Curriculum course, students completing this course will demonstrate competence in:

- Critical Thinking
 - Gathering, analyzing, synthesizing, evaluating and applying information
- Quantitative and Empirical Reasoning
 - Applying mathematical, logical and scientific principles and methods

REQUIRED TEXTBOOKS

Grotzinger, John, and Jordan, Thomas H., 2010. *Understanding Earth*, 7th Edition: New York, NY, W.H. Freeman and Co., 650 p. ISBN-13: 978-1464138744.

Ludman, Allan, and Marshak, Stephen, 2011. *Laboratory Manual for Introductory Geology*, 2nd Edition: New York, NY, W.W. Norton & Company, 438 p. ISBN 978-0-393-91328-6.

REQUIRED COURSE SUPPLIES

- No. 2 pencils or mechanical pencils
- Pencil erasers. You're going to need several.
- Set of colored pencils with at least 10 colors
- Basic electronic calculator

NOTE: cell phones, PDAs, and laptop computers cannot be used as calculators on quizzes

Optional supplies, but highly recommended:

- Three-ring notebook, 3"
- Compass (for drawing circles, not finding directions)
- 12" ruler with Metric and English units

INSTRUCTIONAL METHODOLOGY

This course will be taught in the classroom in a lecture/discussion format illustrated with videos and PowerPoint presentations, along with laboratory exercises. The lecture and lab sessions will generally complement each other, but the lectures focus on general geological topics, while the lab exercises will show you how to apply that knowledge in practical ways.

Student learning will be assessed through graded laboratory exercises, in-class lecture and field activity examinations, and practical quizzes on laboratory exercises.

LABORATORY

It is very important for you to attend all of the laboratory sessions. You should read the assigned chapter in your laboratory manual before you come to class so that you can complete the exercise in the allotted time. Some assignments will be due on the day the exercise is assigned. Other assignments are due at the end of the next lab period, or one week after they were assigned. Please check the course schedule or ask your professor if you are unsure when an assignment is due.

OPEN LAB

Students who miss a laboratory or who need extra time to work on a lab should attend an open-laboratory session. Our geology lab technicians will be available to help you during open labs. This is your best opportunity to successfully complete your lab exercises and spend additional time with the minerals and rocks.

The Open Lab schedule for the semester will be posted outside the lab room and on the class Blackboard site. You must bring your own copy of the laboratory exercise to the open laboratory session if you go to a campus other than Cypress Creek.

Be forewarned: the lab component of this class is labor intensive and it is very easy to get so far behind that you can't catch up.

FIELD TRIP

There is a mandatory class field trip on Saturday, April 18, 2015, from 8:30 a.m. to 5:30 p.m. Transportation will be provided by the College. **You must participate in an ACC physical geology field trip to pass this**

course. Department policy states that students who do not attend the required field trip will fail this class. If you cannot attend our class trip, it is your responsibility to make arrangements **in advance** to participate in another professor's field trip. Do not assume that if you miss the field trip, you will be able to make it up.

COURSE GRADE

Your final course grade will be calculated as follows:

Lecture examinations	3	x	100	300 points
Laboratory quizzes	4	x	50	200
TMYN exercises	5	x	5	25
	2	x	10	20
Laboratory exercises	18	x	5	90
TOTAL				635 points

The following scale will be used to determine your course grade:

90-100%	- A
80-89%	- B
70-79%	- C
60-69%	- D
Below 60%	- F

EXAMINATIONS

Three in-class, closed-book examinations will be given. Questions will be drawn from lectures, handouts, reading assignments, and the field trip. A final exam on the last day of class will emphasize material covered since the last examination. Exams will consist of multiple choice, matching, short answer, and diagram labeling questions. A study guide will be posted on Blackboard approximately one week before each exam. *No exams will be given early.*

LABORATORY QUIZZES

Four graded, in-laboratory practical quizzes will contain questions from material covered in the labs. These include questions about samples of earth materials, maps, and photographs, as well as short-answer questions about terminology and methodology. A study guide will be posted on Blackboard approximately one week before each quiz. *No quizzes will be given early.*

COURSE POLICIES

Attendance/Participation

Attendance will be taken every class period. Students are expected to attend lectures and lab and participate in class discussion, as tests and quizzes are derived from materials presented in lecture and lab as well as from the text. You will learn more from attending the classes than if you just read the text. Regular and punctual class and laboratory attendance is expected of all students. If attendance or compliance with other course policies is unsatisfactory, the instructor may withdraw students from the class.

Withdrawals

If you decide to drop this class, you must protect your academic record by withdrawing no later than **Monday, April 27, 2015**. It is your responsibility to verify that you have successfully withdrawn from the class before the final withdrawal date.

Missed Exams

Make up exams are only offered under extenuating circumstances. Arranging the make-up exam will be at the sole discretion of the instructor. Students must contact the instructor by email or by phone within 24 hours of missing an exam if they wish to take a makeup exam.

Missed Lab Quizzes

All lab quizzes will be given in the laboratory. **There are no make-ups for missed lab quizzes.**

Late Work

Late work will not be accepted. You are responsible for any assignment that you miss, and the due date remains the same. Check Blackboard or contact the professor as soon as possible to get information on the assignment that you missed. **Some assignments are due at the beginning of the laboratory period, others are due at the end of the lab period.**

Blackboard

Students will be expected to access the Blackboard website for this course. All students have access to Blackboard via their student ID, but you will have to set up a password to gain access. Important class information will be posted on Blackboard, including lecture slides, copies of handouts, copies of homework assignments, etc. All students will be expected to routinely visit Blackboard; some class resources will only be available through Blackboard.

Classroom Etiquette

Please be seated and ready for class on time. Lectures start promptly. If you arrive late or need to leave early, please sit near the door. As common courtesy, please do not carry on conversations during lectures, and turn off audible sounds on your cell phone, pager, or computer before you come to class. Do not send text messages during class. Use of a laptop is acceptable, as long as its use is course-related. Students who are disturbing others will be asked to leave the classroom. Repeated offenses may result in the instructor dropping you from the class.

Student Discipline

Students enrolled in this course are expected to comply with the provisions of this syllabus and the Student Code of Conduct. With the exception of scholastic dishonesty, violations of the Student Code of Conduct will be reported to the Campus Dean of Student Services for disciplinary action. Any student suspected of scholastic dishonesty will meet in private with the professor to discuss the alleged offense(s) and review the evidence that supports the charge. After conferring with the student, the professor will dismiss the allegation or assess an academic penalty. A student will be informed in writing if an academic penalty is assessed. He or she should consult the Student Handbook for his/her rights and responsibilities.

Academic Freedom

Institutions of higher education are conducted for the common good. The common good depends upon a search for truth and upon free expression. In this course, the professor and students shall strive to protect free inquiry and the open exchange of facts, ideas, and opinions. Students are free to take exception to views offered in this course, and to reserve judgment about debatable issues. Grades will not be affected by personal views. With this freedom comes the responsibility of civility and a respect for a diversity of ideas and opinions. This means that students must take turns speaking, listen to others speak without interruption, and refrain from name-calling or other personal attacks.

ACC Academic Policies and Services (<http://www.austincc.edu/handbook/>)

Attendance/Class Participation: Regular and punctual class and laboratory attendance is expected of all students. If attendance or compliance with other course policies is unsatisfactory, the instructor may withdraw students from the class.

Withdrawal Policy: It is the responsibility of each student to ensure that his or her name is removed from the roll should he or she decide to withdraw from the class. The instructor does, however, reserve the right to drop a student should he or she feel it is necessary. If a student decides to withdraw, he or she should also verify that the withdrawal is submitted before the Final Withdrawal Date. The student is also strongly encouraged to retain their copy of the withdrawal form for their records. Students who enroll for the third or subsequent time in a course taken since Fall, 2002, may be charged a higher tuition rate, for that course. State law permits students to withdraw from no more than six courses during their entire undergraduate career at Texas public colleges or universities. With certain exceptions, all course withdrawals automatically count towards this limit. Details regarding this policy can be found in the ACC college catalog.

Incompletes: An instructor may award a grade of "I" (Incomplete) if a student was unable to complete all of the objectives for the passing grade in a course. An incomplete grade cannot be carried beyond the established date in the following semester. The completion date is determined by the instructor but may not be later than the final deadline for withdrawal in the subsequent semester.

Statement on Scholastic Dishonesty: A student attending ACC assumes responsibility for conduct compatible with the mission of the college as an educational institution. Students have the responsibility to submit coursework that is the result of their own thought, research, or self-expression. Students must follow all instructions given by faculty or designated college representatives when taking examinations, placement assessments, tests, quizzes, and evaluations. Actions constituting scholastic dishonesty include, but are not limited to, plagiarism, cheating, fabrication, collusion, and falsifying documents. Penalties for scholastic dishonesty will depend upon the nature of the violation and may range from lowering a grade on one assignment to an "F" in the course and/or expulsion from the college. See the Student Standards of Conduct and Disciplinary Process and other policies at <http://www.austincc.edu/current/needtoknow>

Student Rights and Responsibilities: Students at the college have the rights accorded by the U.S. Constitution to freedom of speech, peaceful assembly, petition, and association. These rights carry with them the responsibility to accord the same rights to others in the college community and not to interfere with or disrupt the educational process. Opportunity for students to examine and question pertinent data and assumptions of a given discipline, guided by the evidence of scholarly research, is appropriate in a learning environment. This concept is accompanied by an equally demanding concept of responsibility on the part of the student. As willing partners in learning, students must comply with college rules and procedures.

Statement on Students with Disabilities: Each ACC campus offers support services for students with documented disabilities. Students with disabilities who need classroom, academic or other accommodations must request them through the Office for Students with Disabilities (OSD). Students are encouraged to request accommodations when they register for courses or at least three weeks before the start of the semester, otherwise the provision of accommodations may be delayed. Students who have received approval for accommodations from OSD for this course must provide the instructor with the 'Notice of Approved Accommodations' from OSD before accommodations will be provided. Arrangements for academic accommodations can only be made after the instructor receives the 'Notice of Approved Accommodations' from the student. Students with approved accommodations are encouraged to submit the 'Notice of Approved Accommodations' to the instructor at the beginning of the semester because a reasonable amount of time may be needed to prepare and arrange for the accommodations. Additional information about the Office for Students with Disabilities is available at <http://www.austincc.edu/support/osd/>

Safety Statement: Austin Community College is committed to providing a safe and healthy environment for study and work. You are expected to learn and comply with ACC environmental, health and safety procedures and agree to follow ACC safety policies. Additional information on these can be found at <http://www.austincc.edu/ehs> Because some health and safety circumstances are beyond our control, we ask that you become familiar with the Emergency Procedures poster and Campus Safety Plan map in each classroom. Additional information about emergency procedures and how to sign up for ACC Emergency Alerts to be notified in the event of a serious emergency can be found at: <http://www.austincc.edu/emergency/> Please note, you are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities. You are expected to conduct yourself professionally with respect and courtesy to all. Anyone who thoughtlessly or intentionally jeopardizes the health or safety of another individual will be immediately dismissed from the day's activity, may be withdrawn from the class, and/or barred from attending future activities.

Use of ACC email: All College e-mail communication to students will be sent solely to the student's ACCmail account, with the expectation that such communications will be read in a timely fashion. ACC will send important information and will notify you of any college related emergencies using this account. Students should only expect to receive email communication from their instructor using this account. Likewise, students should use their ACCmail account when communicating with

instructors and staff. Instructions for activating an ACCmail account can be found at <http://www.austincc.edu/accmail/index.php>

Testing Center Policy: Under certain circumstances, an instructor may have students take an examination in a testing center. Students using the Academic Testing Center must govern themselves according to the *Student Guide for Use of ACC Testing Centers* and should read the entire guide before going to take the exam. To request an exam, one must have an ACC Photo ID, the Course Abbreviation (e.g. GEOL), the Course Number (e.g. 1301), the Course Synonym (e.g. 03293), the Course Section (e.g. 002) and the Instructor's Name. Do NOT bring cell phones to the Testing Center. Having your cell phone in the testing room, regardless of whether it is on or off, will revoke your testing privileges for the remainder of the semester. ACC Testing Center policies can be found at <http://www.austincc.edu/testctr/>

Student and Instructional Services: ACC strives to provide exemplary support to its students and offers a broad variety of opportunities and services. Information on these services and support systems is available at: <http://www.austincc.edu/s4/> Links to many student services and other information can be found at: <http://www.austincc.edu/current/> ACC Learning Labs provide free tutoring services to all ACC students currently enrolled in the course to be tutored. The tutor schedule for each Learning Lab may be found at: <http://www.austincc.edu/tutor/students/tutoring.php> For help setting up your ACCeID, ACC Gmail, or ACC Blackboard, see a Learning Lab Technician at any ACC Learning Lab.

Cypress Creek Campus Safety Rules and Information

You can read the complete ACC science safety policy at: http://www.austincc.edu/sci_safe/

EMERGENCIES

ACC POLICE DISPATCH: 222 (from an ACC phone) or 223-7999 (from a cell or other phone)

The red phone is located on the counter near the printer.

Tell the operator you are at the Cypress Creek Campus, Room 2236.

In an evacuation:

- Take your personal belongings with you if possible.
- Take the stairway behind the lab to exit the building. **DO NOT USE ELEVATORS.**
- Go to the Rally Point near the faculty parking on the north side of campus.
- **DO NOT LEAVE CAMPUS.**

FIRE

The nearest fire extinguishers are located by the door to the prep room near the chemical shower and in the Prep room.

To use the extinguisher:

- twist the pin and then pull it out of the handle
- hold the end of the hose and point it at the base of the fire
- squeeze the handle

A fire blanket is located next to the Prep room door, by the chemical shower.

GENERAL LAB SAFETY

Eyewashes are located on both sides of the lab at the sinks.

A **safety shower** is located near the door to the prep room.

First aid kit is located on the wall near the chemical shower.

- Serious injuries must be treated in a medical facility
- Emergency Medical Services (EMS) will be called if you are injured and are unable to take yourself to a medical facility

Lab chemical information can be found in Material Safety Data Sheets (MSDSs) located in the white binder by the printer.

Electrical safety from touching wires or equipment:

- Pull out electrical cords at the plug not by the cord
- In the event of electrical shock:
 - Push the large RED emergency shut-off button located by both main doors of the lab room. These buttons will cut off electric power to the lab tables
 - Use a meter stick, belt or other non-conducting material to pull the person away from the electrical source.

Personal Protective Equipment (PPE)

- Shoes – Closed-toed shoes are recommended when rock and mineral specimens and chemicals are used in the lab.

STANDARD LAB POLICIES

- Report all broken equipment, glass, ceramics or other materials to your professor or lab tech.
- Do not dispose of broken materials on your own.
- Return all supplies to their designated storage unless directed otherwise by your professor.
- Clean up your lab space before leaving the lab.
- Refrain from using computer power cords unless the cords remain off the floor or chairs.
- Follow all procedures in manuals and handouts, and instructions given by the professor or laboratory technician.

DO NOT:

- Come to class while intoxicated or under the influence of drugs.
- Place liquids near computers, keypads, or other electrical equipment.
- Block walkways with a backpack, coat or other personal items.
- Touch or come into contact with anyone else's body fluids.

- **You will not be able to participate in a lab activity if you have not followed safety policies and procedures for that lab or field activity.**
- **You may be withdrawn from the class and not reinstated if you repeatedly fail to follow lab safety policies and procedures.**
- **You may be expelled from ACC if you thoughtlessly or intentionally jeopardize the health or safety of another individual.**

OTHER HELPFUL INFORMATION

Studying

Science courses commonly require a different approach to studying than other courses. In this course you will be asked to conceptualize things in three dimensions, understand complex concepts, and learn a whole new vocabulary for describing your planet. You will improve your performance if you:

- take notes from both the textbook and the lecture
- answer the study questions in each chapter
- go over the chapter summary
- revisit fundamental concepts in each chapter
- review key terms at the end of each assigned chapter

Many students find it useful to make flash cards for terms and their definitions.

Web Resources

<http://bcs.whfreeman.com/understandingearth6e/>

Companion website for the textbook. Some material remains free, other material requires a paid subscription.

<http://geology.com/geology-dictionary.shtml>

Excellent resource for reviewing key vocabulary terms.

GEOL 1403 - Physical Geology - Section 010 - T/Th Spring 2015
Lecture, Lab, & Exam Schedule*

Class	Day	Date	Lecture Topic	Text CH	Lab Exercise	Lab CH	Lab Due	TMYN Module	TMYN Due	
1	Tues	1/20	Introduction	1	TMYN intro; Math, Chemistry, and Geography Review lab	-	1/22	Pre-test, Units 1	1/22	
2	Thurs	1/22	Fundamental Principles		Lab Safety, MCG Review Lab	-		Rates	1/27	
3	Tues	1/27	Plate Tectonics	2	Plate Tectonics	2	1/29	Equations	1/27	
4	Thurs	1/29	Interior of the Earth	14	Plate Tectonics	2				
5	Tues	2/3	Earthquakes and Tsunamis	13	Earthquakes	16	2/5			
6	Thurs	2/5	Minerals	3	Mineral Properties	3	2/10			
7	Tues	2/10	Minerals	3	Mineral Identification	3	2/12			
8	Thurs	2/12	Rock Cycle	3	Mineral Identification	3				
9	Tues	2/17	Igneous Rocks	4	Quiz 1 (review, plate tectonics, earthquakes, minerals)					
10	Thurs	2/19	Igneous Rocks	4	Magma Chamber Lab	4, 5	2/24			
11	Tues	2/24	Volcanoes	12	Igneous Rocks	4, 5	2/26			
12	Thurs	2/26	Exam 1 (CH 1-4, 13, 14)		Igneous Rocks					
13	Tues	3/3	Weathering/Sedimentary	16A	Sedimentary Rocks	6	3/5			
14	Thurs	3/5	Sedimentary Rocks	5	Sedimentary Rocks	6				
15	Tues	3/10	Metamorphic Rocks	6	Metamorphic Rocks	7	3/12			
16	Thurs	3/12	Metamorphic Rocks	6	Metamorphic Rocks	7				
	Tues	3/17	Spring Break							
	Thurs	3/19	Spring Break							
17	Tues	3/24	Structural Geology	7	Geologic Structures	15	3/31	Units 2	3/31	
18	Thurs	3/26	Structural Geology	-	Geologic Structures	15		Slopes	4/2	
19	Tues	3/31	Geochronology	8	Quiz 2 (rocks)			Post-test	4/9	
20	Thurs	4/2	Geochronology	8	Relative & Absolute Dating	17	4/9			
21	Tues	4/7	Exam 2 (CH 5-8, 12, 16A)		Geologic Maps	15	4/9			
22	Thurs	4/9	Landform Evolution	22	Topographic Map Interpretation	8, 9	4/14			
23	Tues	4/14	Mass Wasting	16B	Contours and Topographic Profiles	8, 9	4/16			
24	Thurs	4/16	Climate	15	Contours and Topographic Profiles	8, 9				
	Sat	4/18	Field Trip							
25	Tues	4/21	Glaciation	21	Quiz 3 (structures, dating, geol maps, topo maps)					
26	Thurs	4/23	Streams	18	Fluvial Processes	10	4/28			
27	Tues	4/28	Streams	18	Fluvial Processes	10				
28	Thurs	4/30	Groundwater	17	Groundwater	12	5/5			
29	Tues	5/5	Winds and Deserts	19	Aeolian Processes	13	5/5			
30	Thurs	5/7	Coastlines	20	Shoreline Processes	14	5/7			
31	Tues	5/12	Review		Quiz 4 (topo map contouring, groundwater, geomorphology)					
32	Thurs	5/14	Exam 3 (CH 15-22)							

*Schedule changes may occur during the semester. Any changes will be announced in class.