Course Syllabus
Physical Geology
GEOL 1403

Fall 2015 Physical Geology (GEOL 1403; CRN 76755)

Instructor contact information (Dr. Peter Azah Abanda, peter.abanda@hccs.edu)

Office Location and Hours: MW, 9:00 AM - 1:00 PM in faculty workroom (Stafford Campus)

Course Location/Times: Room S114, Stafford Campus from 11:00 AM – 2:00 PM

Course Semester Credit Hours (SCH) (lecture, lab).

Credit Hours: 4
Lecture Hours: 3
Laboratory Hours: 3

Total Course Contact Hours

96.00

Course Length (16 Weeks)

Type of Instruction

Lecture/Lab. Presentation of course materials will include traditional face-to-face lectures and classroom discussions with supplemental instruction through McGraw-Hill Connect.

Course Description:

Introduction to the study of the materials and processes that have modified and shaped the surface and interior of Earth over time. These processes are described by theories based on experimental data and geologic data gathered from field observations. Laboratory activities will cover methods used to collect and analyze earth science data.

Course Prerequisite(s)

FREQUENT REQUISITES

- Qualify to take GUST 0342 (9th -11th Grade Reading) or higher – and –
- Qualify to take ENGL 0310 or 0349 or INRW 0420 – and –
- Qualify to take MATH 0312 (Intermediate Algebra) or higher

Academic Program Learning Outcomes

1. Students will recognize scientific and quantitative methods. Students will evaluate the differences of scientific approaches and communicate these findings, analyses, and interpretations in oral and written communication.

2. Students will demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, religion, and public policies.

3. Students will demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

4. Students will identify and recognize the differences in competing scientific theories.

Course Student Learning Outcomes (SLO):

1. Describe how the scientific method has led to our current understanding of Earth's structure and processes.
2. Interpret the origin and distribution of minerals, rocks and geologic resources.
3. Describe the theory of plate tectonics and its relationship to the formation and distribution of Earth's crustal features.
4. Quantify the rates of physical and chemical processes acting on Earth and how these processes fit into the context of geologic time.
5. Communicate how surface processes are driven by interactions among Earth's systems (e.g., the geosphere, hydrosphere, biosphere, and atmosphere).
6. Identify and describe the internal structure and dynamics of Earth.
7. Describe the interaction of humans with Earth (e.g., resource development or hazard assessment).

In Lab, students will:

8. Classify rocks and minerals based on chemical composition, physical properties, and origin.
9. Apply knowledge of topographic maps to quantify geometrical aspects of topography.
10. Identify landforms on maps, diagrams, and/or photographs and explain the processes that created them.
11. Differentiate the types of plate boundaries and their associated features on maps and profiles and explain the processes that occur at each type of boundary.
12. Identify basic structural features on maps, block diagrams and cross sections and infer how they were created.
13. Demonstrate the collection, analysis, and reporting of data.

Learning Objectives

1.1. Defend or criticize the evidence for Plate Tectonics.

2.1 Compare the formation of igneous, sedimentary and metamorphic rocks

2.2 Explain distribution and formation of fossil fuel and mineral resources.

3.1. Identify the major physiographic features of the oceans and continents related to their plate tectonic setting

3.2. Sketch the different types of plate boundaries and label the features.

4.1 Evaluate the movement of the continents from the formation of Pangaea to present day positions.

4.2 Compare rates of geologic surface processes (e.g., rate of glacial retreat, erosion, coastal retreat)

5.1 Describe the combination of processes that shape landforms.

5.2 Evaluate how the biosphere affects rates of chemical weathering.

6.1 Draw and label a diagram of the interior of the earth.

6.2 Describe how Earth's internal structure impacts plate motion.

7.1 Discuss human modification of Earth's surface and how it contributes to geologic hazards (e.g., dams, highways, wetland development).

8.1. Identify a variety of common rock-forming minerals using physical properties.

8.2. Identify igneous, sedimentary and metamorphic rocks using texture and composition.

9.1. Read, interpret, analyze and understand topographic maps and geological profiles in terms of relief, contour intervals, and elevation.

9.2. Construct topographic maps with provided data.

10.1. Use various forms of technology (e.g., Google Earth, stereo photographs) to identify landforms.

11.1 Draw and label a profile of a subduction zone and a divergent boundary.

11.2 Identify the plate boundary types based on landforms seen on the map (e.g., offset rivers along transform fault)

12.1 Label and interpret folds and faults on geologic maps and cross-sections.

12.2 Interpret the geologic structures in relation to plate tectonic stresses.

13.1. Locate the epicenter of an earthquake by reading a seismogram.

Core Curriculum Objectives:
This course is in the Life and Physical Science Core Curriculum category and meets the objectives of Critical Thinking, Communication Skills, Empirical & Quantitative, and Teamwork.

Tentative Course Calendar/Outline

Week	Lecture and discussion topics	Chapter readings	Assignments/Exams
1	Discuss course outline, online connect HW and quizzes system registration and navigation, earth systems, unit conversions, the nature of geology.	Chps 1&2	Laboratory exercise in unit conversions and measurements. Learnsmart assignment –connect.
2	Investigating geologic questions	Chp. 3	Density of earth materials lab. Learnsmart assignment –connect.
3	Plate tectonics	Chp. 4	Plate tectonics lab. Learnsmart assignment –connect.
4	Earth materials – Composition, structure, properties and classification of minerals.	Chp. 5	Mineral properties, identification and uses lab. Learnsmart assignment –connect.
5	Igneous environments - texture, composition, and environment	Chp. 6	Rock forming processes and the rock cycle. Learnsmart assignment

	of formation of igneous rocks. Review.		–connect.
6	Volcanoes and volcanic Hazards, Exam 1	7	Igneous rocks and processes lab, Exam 1. Learnsmart assignment – connect.
7	Sedimentary environments and rocks, energy resources from sedimentary rocks.	8	Sedimentary processes, environments and classification and identification of sedimentary rocks. Learnsmart assignment – connect.
8	Deformation and metamorphism	12	Metamorphic rocks lab. Learnsmart assignment –connect.
9	Earthquakes and earth interior	13	Earthquake hazard and human risk lab. Learnsmart assignment – connect.
10	Exam 2	15	Review and exam 2
11	Climate, weather and their influence on geology		Topographic maps, Weather and climate lab. Learnsmart assignment –connect.
12	Weathering, soil and unstable slopes.	18	Dating lab. Learnsmart assignment –connect.
13	Streams and flooding	19	Stream processes, Landscapes, mass wasting and flood hazards lab. Learnsmart assignment – connect.
14	Review	Various	Geologic Structures, Maps, and block diagrams. Learnsmart assignment – connect.
15	Review	Various	Review for final Exam
16	Final Exams		

Instructional Methods

Face-to-Face lectures and discussions including a supplemental online component through McGraw-Hill connect.

Student Assignments

See above course outline table including tentative course outline. Assignment calendar will be updated weekly.

Student Assessment(s) and grading

TYPE OF ASSESSMENT	# OF ASESSMENTS	POINTS	TOTAL POINTS
Unit exams	**2**	**100**	**200**
Final Exam	**1**	**200**	**200**
Term paper and presentation	**1**	**100**	**100**
In class and online quizzes and homework	**Various**	**250**	**250**
Labs	**Various**	**250**	**250**

Total	**1000**

Description of Exams and Assignments

- **Homework**: Homework is vital to success in any class! Therefore, it is important that you do your homework regularly and get help immediately when you have questions. Homework will be regularly assigned throughout the semester. A majority of the assignments will be online on McGraw-Hill Connect. Due dates will be given in class.
- **Quizzes**: Quizzes will be administered regularly throughout the semester. They can be given either online or in class. The in-class quizzes may be announced or unannounced and cannot be made up. Should a student miss class, it is the student's responsibility to get a copy of the assignment from the instructor or consult with a classmate and turn it in on time. Late assignments will be penalized. Online quizzes will be posted on Connect. Their deadline will be announced in class.
- **Lab Reports**: This course contains a lab section, which complements and reinforces the concepts that are taught in lectures. Lab reports will be assigned from each lab. All lab reports must follow the report format, which will be discussed in class. Due dates will be given in class. All labs must be done at the regularly scheduled lab time; no make-up labs will be given. Although this laboratory section of this class does not give separate credit, it does represent a good fraction of the overall grade for the course.
- **Research Paper and Presentation**: The paper will be about a geoscience topic of the student's interest. The length of the paper should be 3–5 pages, typed, and double-spaced with references. At least one of the references should come from the HCC library. The student is expected to give an approximately 5-minute presentation to the class, sharing information about their topic.
- **Exams**: There will be 2 unit exams and a final comprehensive exam. A make up exam will be given ONLY if the student has a legitimate reason and notifies the instructor within 24 hours of the exam date. In addition, the exam must be made up by the next class period. Only one major exam may be made up. The final exam cannot be made up.

Instructor's Requirements

Regular and prompt classroom attendance is a critical component of the educational experience because it prepares you the student to be effective and responsible citizen. Students are expected to contact the instructor regarding any absence before class, or within 24 hours in case of an emergency, just as they would contact an employer regarding any absence from their jobs. With proper notification, the student may be given the opportunity to make up missed work by the next class period. Students are responsible for any material covered in class during their absence. Regardless of the reason or excuse, excessive absences, tardiness, or early departures from class will negatively affect course grades. Attend class regularly and be prepared to engage in classroom discussions.

Program/Discipline Requirements: If applicable

Lab Requirements

Lab attendance is mandatory. Lab exercises and assignments are designed to complement the lecture and give you hands-on experience with the concepts covered in lecture. Thinking through and understanding lab assignments is a big step toward learning the material.

Collaborative group work is emphasized. You can learn from your classmates and them from you.

All HCC policies regarding attendance, withdrawal, academic honesty, students with disabilities, grading, and student rights will be followed in this course. Refer to syllabus section titled "Instructor's Requirements", "HCC Policy Statements", and "Grading" for more details as well as the Student Handbook http://www.hccs.edu/district/students/student-handbook/

HCC Grading Scale:

A = 100- 90:	4 points per semester hour
B = 89 - 80:	3 points per semester hour
C = 79 - 70:	2 points per semester hour
D = 69 - 60:	1 point per semester hour
59 and below = F	0 points per semester hour
FX (Failure due to non-attendance)	0 points per semester hour
IP (In Progress)	0 points per semester hour
W (Withdrawn)	0 points per semester hour
I (Incomplete)	0 points per semester hour
AUD (Audit)	0 points per semester hour

IP (In Progress) is given only in certain developmental courses. The student must re-enroll to receive credit. COM (Completed) is given in non-credit and continuing education courses.

FINAL GRADE OF FX: Students who stop attending class and do not withdraw themselves prior to the withdrawal deadline may either be dropped by their professor for excessive absences or be assigned the final grade of "FX" at the end of the semester. Students who stop attending classes will receive a grade of "FX", compared to an earned grade of "F" which is due to poor performance. Logging into a DE course without active participation is seen as non-attending. Please note that HCC will not disperse financial aid funding for students who have never attended class.

Students who receive financial aid but fail to attend class will be reported to the Department of Education and may have to pay back their aid. A grade of "FX" is treated exactly the same as a grade of "F" in terms of GPA, probation, suspension, and satisfactory academic progress.

To compute grade point average (GPA), divide the total grade points by the total number of semester hours attempted. The grades "IP," "COM" and "I" do not affect GPA.

Health Sciences Programs Grading Scales may differ from the approved HCC Grading Scale. For Health Sciences Programs Grading Scales, see the "Program Discipline Requirements" section of the Program's syllabi.

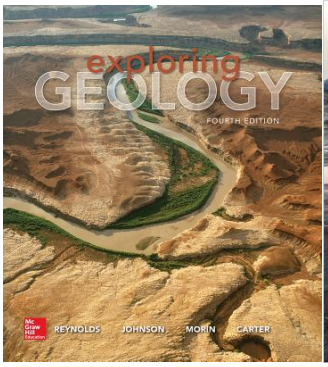
Instructor Grading Criteria

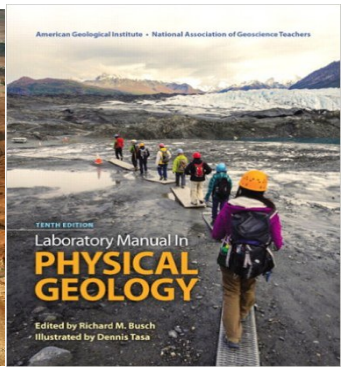
See student assessment and Grading

Instructional Materials

Textbook: Exploring Geology, 4th ed., Reynolds et al., McGraw-Hill, 2016. ISBN 9781259292217 *(access code for Connect system). Once you log-in to the Connect system you have the option of ordering a loose-leaf copy of the book if you would like a hardcopy.*

Lab Book: *Laboratory Manual in Physical Geology, 10th ed.,* edited by Busch, Prentice Hall, 2014 (ISBN 13-9780321944511).





HCC Policy Statement:

Please familiarize yourself with campus policies in the HCC Student Handbook: http://www.hccs.edu/district/students/student-handbook/

Student with Disabilities (ADA): HCCS is committed to compliance with the American with Disabilities Act and the Rehabilitation Act of 1973 (section 504)
"Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Disability Services Office at the respective college at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the Disability Support Services Office.
For questions, contact Donna Price at 713.718.5165 or the Disability Counselor at your college. To visit the ADA Web site, log on to www.hccs.edu, click Future Students, scroll down the page and click on the words Disability Information."
If you have any special needs or disabilities, which may affect your ability to succeed in college classes or participate in college programs/activities, please contact the office of disability support services at the college. Upon consultation and documentation, you will be provided with reasonable accommodations and/or modifications. Please contact the DSS office as soon as you begin the term. **Also visit the ADA web site at:**
http://www.hccs.edu/district/students/disability-services/

Academic Honesty: "Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Disciplinary proceedings may be initiated by the college system against a student accused of scholastic dishonesty. Penalties can include a grade of "0" or "F" on the particular assignment, failure in the course, academic probation, or even dismissal from the college. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion." **Cheating** includes looking at or copying from another student's exam, orally communicating or receiving answers during an exam, having another person take an exam or complete a project or assignment, using unauthorized notes, texts, or other materials for an exam, and obtaining or distributing an unauthorized copy of an exam or any part of an exam. **Plagiarism** means passing off as his/her own the ideas or writings of another (that is, without giving proper credit by documenting sources). Plagiarism includes submitting a paper, report or project that someone else has prepared, in whole or in part. **Collusion** is inappropriately collaborating on assignments designed to be completed independently. These definitions are not exhaustive. When there is clear evidence of cheating, plagiarism, collusion or misrepresentation, a faculty member will take disciplinary action including but not limited to: requiring the student to retake or resubmit an exam or assignment, assigning a grade of zero or "F" for an exam or an assignment; or assigning a grade of "F" for the course. Additional sanctions, including being withdrawn from the course/program or expelled

from school, may be imposed on a student who violates the standards of academic integrity. See the Student Handbook for additional details.

Attendance:
You are expected to attend all lecture classes and labs regularly. You are also responsible for materials covered during your absences. Instructors may be willing to consult with you for make-up assignments, but it is your responsibility to contact the instructor. Class attendance is monitored daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences. *You may be dropped from a course after accumulating absences in excess of 12.5 percent of the total hours of instruction* (lecture and lab). For this 4 credit-hour lecture class meeting 6 hours per week, you can be dropped after 12 hours of absence.

Withdrawal Policy: The deadline for withdrawal is October 30, 2015.
The State of Texas imposes penalties on students who withdraw/drop courses excessively. Students are limited to no more than SIX total course withdrawals throughout their educational career at a Texas public college or university. Students are encouraged to review the HCC 6 Drop Policy.
Students who repeat a course three or more times face significant tuition/fee increases at HCC and other Texas public colleges and universities. If you are considering course withdrawal because you are not earning passing grades, confer with your instructor/counselor as early as possible about your study habits, reading and writing homework, test-taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

Religious Holidays: If you observe a religious holiday and miss class, you must notify your instructor in writing two weeks in advance to arrange to take a test or make up an assignment. A religious holiday is "a holy day observed by a specific religion and the place of worship is exempt from property taxation under Section 11.20 of the Tax Code."

Policy on Electronic Devices: The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for purposes other than student learning is strictly prohibited. If an instructor perceives such use as disruptive and/or inappropriate, the instructor has the right to terminate such use. If the behavior continues, the student may be subject to disciplinary action to include removal from the classroom or referral to the Dean of Student Services
Students with disabilities who need to use a recording device as a reasonable accommodation should contact the Office for Students with Disabilities for information regarding reasonable accommodations.

HCC Sexual Harassment Policy: HCC shall provide an educational, employment, and business environment free of sexual harassment. Sexual harassment is a form of sex discrimination that is not tolerated at HCC. Any student who feels that he or she is the victim of sexual harassment has the right to seek redress of the grievance. HCC provides procedures for reviewing and resolving such complaints through its Grievance Policy. Substantiated accusations may result in disciplinary action against the offender, up to and including termination of the employee or suspension of the student. In addition, complainants who make accusations of sexual harassment in bad faith may be subject to equivalent disciplinary action.

Student Rights and Responsibilities:
http://www.hccs.edu/district/about-us/policies/d-student-services/d4-student-rights--responsibilities/

and in the Student Handbook

$EGLS_3$ -- Evaluation for Greater Learning Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time near the end of the term, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and department chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.