



**Department of Natural Sciences
GEOLOGY Program**

<http://www.hccs.edu/geology>

GEOL 1403: Physical Geology | Lecture & Lab | CRN#10117

Summer I 2019 | 5 Weeks (06/03/2019-07/08/2019)

In-Person | CE-LH SCI RM 418 M-F/8:00-11:50 am

4 Credit Hours | 96 hours per semester

Instructor Contact Information

Instructor: Peter Azah Abanda, Ph.D.
Office: WLC Faculty Area
HCC Email: peter.abanda@hccs.edu

Office Phone: 713-718-6764
Office Hours: TBA
Office Location: WLC, Faculty Area

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear your concerns and just to discuss course topics.

Important Dates to Remember:

Jun 3 Summer 2019 1st 5-Wk: Classes Begins

Jun 6 Summer 2019 1st 5-Wk: Official Day of Record

Jun 7 Summer 2019 1st 5-Wk: Last Day for 70% refund

Jun 10 Summer 2019 1st 5-Wk: Last Day for 25% refund

Jun 24 Summer 2019 1st 5-Wk: Last day to withdraw

Jul 8 Summer 2019 1st 5-Wk: Semester Ends

Instructor's Preferred Method of Contact

I will respond to emails within 24 hours Monday through Friday; I may only reply to weekend messages on Monday mornings.

The Department of Natural Science can be contacted via phone 713-718-6050 or email natural.sciences@hccs.edu

What's Exciting About This Course

The purpose of this Physical Geology course is to enable students to use fact and observation to make interpretations about geologic processes operating today and in the past. Students will be introduced to the theory of plate tectonics, explaining many processes such as mountain building, volcanism, and Earthquakes happening. They will use observations on earth materials like minerals and rocks. Other questions to be addressed, deal with the

different earth systems and their interactions that may affect the landscape, modify the landscape.

Students will learn to interpret data from a variety of resources including topographic maps. They will be able to identify and interpret the basic deformation structures within the earth's crust.

My Personal Welcome

Welcome to Physical Geology—I'm glad that you have chosen this course. I will try my best to pass on the knowledge I have in the field of geology to every student. I will present the information in an easy and effective way, so that you can understand the concept and master the content for a better achievement, and to apply it hopefully throughout your life. As you get familiar with new ideas and facts that may challenge you, I will be available to support you. So please visit me or contact me whenever you have a question.

Prerequisites and/or Co-Requisites

GEOL 1403 requires college-level reading and math skills. The minimum requirements for enrollment in GEOL 1403 is qualifying to enroll in INRW 0420 or ESOL 0370/0360 as well as place into MATH 0314 or higher. Please carefully read and consider the repeater policy in the [HCCS Student Handbook](#).

Eagle Online Canvas Learning Management System

This section of GEOL 1403 will use [Eagle Online Canvas \(https://eagleonline.hccs.edu\)](https://eagleonline.hccs.edu) at minimum to post grades regularly. This section of GEOL 1403 will use Eagle Online to supplement in-class assignments, exams, and activities.

HCCS Open Lab locations may be used to access the Internet and Eagle Online Canvas. It is recommended that you **USE FIREFOX OR CHROME AS YOUR BROWSER.**

HCC Online Information and Policies

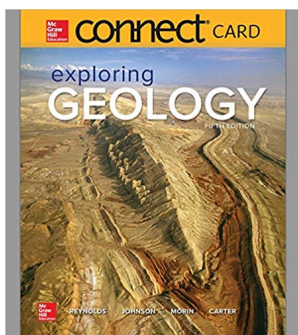
Here is the link to information about HCC Online classes including the required Online Orientation for all fully online classes: <http://www.hccs.edu/online/>

Scoring Rubrics, Sample Assignments, etc.

Look in Eagle Online Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course. Also be sure to check in for announcements. <https://eagleonline.hccs.edu/>

Instructional Materials

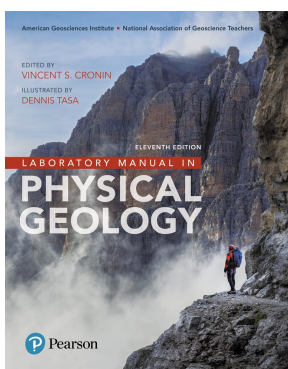
Textbook Information



The textbook listed below is **required** for this course. "**Exploring Geology**" (5th edition) by Reynolds et al (McGraw-Hill, 2018). Digital book via *Connect* ISBN: 9781260139976

Purchase an access code at the [HCC Bookstore](#) or order directly from the *Connect* website. Instructors will create assignments &/or assessments in the McGraw-Hill *Connect* system. Order your book here: [HCC Bookstore](#)

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. *Connect* section URL: http://connect.mheducation.com/class/p-abanda-summer-i-2019-crn_10117



The Lab Book listed below is **required and Mandatory** for this course.

"Laboratory Manual in Physical Geology" (11th edition) edited by Cronin (Pearson, 2017) ISBN: 9780134446608.

Important:

Students must have a hardcopy of this book, not digital format. No copies are accepted.

Temporary Free Access to E-Book

When students initially navigate to the instructor's section within *Connect* the student can select to enter a paid access code, pay for registration, or select complimentary temporary access. Temporary access lasts for 2 weeks and student must pay for registration before the temporary period expires.

About the Textbook

This is a unique textbook designed to help you learn geologic concepts and processes on your own. Nearly all the information in the book is built around illustrations and photographs, rather than being in long blocks of text. The entire book consists of a series of two-page spreads organized into chapters. Each two-page spread is a self-contained block of information about a specific topic and has a short list indicating what you should be able to do before you leave these pages. The What-To-Know List is your guide to what is important. If, when studying from the book, you construct your own answer to each item on the What-To-Know List, then I predict you will receive an A in the class. Each two-page spread in the book has a unique number (e.g., 12.4), and these numbers are referenced for quizzes and other course assignments. Each chapter ends with an investigation concerning a problem associated with a "virtual place".

Other Instructional Resources

Tutoring

HCC provides free, confidential, and convenient academic support, including writing critiques, to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the [HCC Tutoring Services](#) website for services provided.

Libraries

The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries' resources and services is the HCCS library web page at <http://library.hccs.edu>.

Check out the Geology LibGuide maintained by the HCC library <https://library.hccs.edu/geology>

Supplementary Instruction

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at <http://www.hccs.edu/resources-for/current-students/supplemental-instruction/>.

Course Overview

GEOL 1403 is introductory lab-based geology. 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. This course is required as the introductory course in most geology undergraduate programs and is the prerequisite for GEOL 1404.

Core Curriculum Objectives (CCOs)

GEOL 1403 satisfies the social science requirement in the HCCS core curriculum. The HCCS Geology Program Committee has specified that the course address the following core objectives:

- **Critical Thinking:** Students will demonstrate the ability to engage in inquiry and analysis, evaluation and synthesis of information, and creative thinking. Students will
- **Communication Skills:** Students will demonstrate effective development, interpretation and expression of ideas through written, oral, and visual communication. For example, students will construct well labeled concept sketches of geologic processes or settings to demonstrate understanding.
- **Quantitative and Empirical Literacy:** Students will demonstrate the ability to draw conclusions based on the systematic analysis of topics using observation, experiment, and/or numerical skills. Exercises based around maps, sample identification, geologic structure analysis, and landscape evaluation are examples of how these objectives will be encountered.
- **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal by working together with other classmates on assignments or a project during the semester. Many lab assignments may be completed in teams.

Program Student Learning Outcomes (PSLOs)

Can be found at:

<https://learning.hccs.edu/programs/geology>

Course Student Learning Outcomes (CSLOs)

Upon completion of GEOL 1403, the student will be able to:

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).
8. (Lab) Classify rocks and minerals based on chemical composition, physical properties, and origin.
9. (Lab) Apply knowledge of topographic maps to quantify geometrical aspects of topography.
10. (Lab) Identify landforms on maps, diagrams, and/or photographs and explain the processes that created them.
11. (Lab) 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. (Lab) Identify basic structural features on maps, block diagrams and cross sections and infer how they were created.
13. (Lab) Demonstrate the collection, analysis, and reporting of data.

Learning Objectives

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.

Student Success

Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for written assignments. The assignments provided will help you use your study hours wisely. Successful completion of this course requires a combination of the following:

- Reading the textbook via eBook or SmartBook
- Attending class in person and/or online
- Completing assignments
- Participating in class activities

There is no short cut for success in this course; it requires reading (and probably re-reading) and studying the material using the course objectives as your guide.

Instructor and Student Responsibilities

As your Instructor, it is my responsibility to:

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through learner-centered instructional techniques
- Provide a description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness, and make up
- Provide the course outline and class calendar which will include a description of any special projects or assignments
- Arrange to meet with individual students before and after class as required

As a student, it is your responsibility to:

- Attend class in person and/or online
- Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me
- Read and comprehend the textbook
- Complete the required assignments and exams
- Ask for help when there is a question or problem
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

Assignments, Exams, and Activities

Exams

- 2 Lecture exams (multiple choice/True or false questions, short essay questions). Date of these exams are subject to change.
- 1 Lab. exams (open ended questions/hands on activities, interpreting, labeling and measuring). Answering on a test booklet.
- Final exam (multiple choice/True or false questions, open ended questions). Fixed date Communicated to students later in the semester in a timely manner

Laboratory Exercises

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. Lab attendance is mandatory. All labs must be done at the regularly scheduled lab time; no make-up labs will be given. 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. Upon completion of a laboratory exercise, students will submit a lab report for credit. Although this laboratory section of this class does not give separate credit, it does represent a 25% of the overall grade for the course. If you are not present in class for lab, you will not receive credit for that lab.

A student cannot submit a lab report if they were not present during lab. A total of 10 laboratory exercises shall be completed. The lab portion of this course will constitute 25% of the course grade.

Assignments or Projects

Include written assignments, oral assignments, projects, will be communicated to students during the semester. You will be assigned a term project and details will be discussed in class.

Final Exam

There will be 2 unit exams and a final 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. Final exam will be a multiple choice, writing and true or false questions test. It will be on all materials taught in this class. **Do Not miss the final review session!**

Grading Formula

TYPE OF ASSESSMENT	# OF ASESSMENTS	POINTS	TOTAL POINTS
Unit Exams	2	150 x 2	300
Final Exam	1	200	200
Term paper/project	1	100	100
In class and online quizzes and homework	Various	150	150
Labs	Various	250	250
		Total	1000

HCC Grading Scale can be found on this site under Academic Information:
<http://www.hccs.edu/resources-for/current-students/student-handbook/>

Course Calendar

Week	Lecture and discussion topics and chapter readings.	Lab exercises/assignments/exams
Week 1 - 06/03 – 06/04	Introduction, Course Outline, Connect registration. The nature of geology. <i>Chp 1</i>	Online connect reading assignment and quiz.
Week 1 - 06/05	Lab #1. Thinking Like a geologist and exercises in unit conversions and measurements.	Online connect reading assignment and quiz.
Week 1 - 06/06	Plate Tectonics Theory. <i>Chp 3</i>	Online connect reading assignment and quiz.
Week 1 - 06/07	Investigating geologic questions <i>Chp 2</i> Lab #2. Density of earth materials.	Online connect reading assignment and quiz.
Week 2 - 06/10	Earth materials – Composition, structure, properties and classification of minerals. <i>Chp 4</i>	Online connect reading assignment and quiz.
Week 2 - 06/11	Earth materials – Composition, structure, properties and classification of minerals. <i>Chp 4</i>	Review for Exam 1 (<i>chps 1-4</i>) Online connect reading assignment and quiz.
Week 2 – 06/12	Lab #3. Plate Tectonics Theory.	Connect reading assignment and quiz.
Week 2 – 06/13	Igneous environments - texture, composition, and environment of formation of igneous rocks. <i>Chp 5</i>	Connect reading assignment and quiz
Week 2 - 06/14	Lab #4. Mineral properties, identification and uses lab. Exam 1	Connect reading assignment and quiz.
Week 3 06/17	Volcanoes and volcanic Hazards <i>Chp 6</i>	Connect reading assignment and quiz
Week 3 – 06/18	Sedimentary environments and rocks, energy resources from sedimentary rocks. <i>Chp 7</i>	Connect reading assignment and quiz
Week 3 – 06/19	Complete Lab #4. Mineral properties, identification and uses lab. Lab #5. Rock forming processes	Connect reading assignment and quiz

	and the rock cycle.	
Week 3 - 06/20	Deformation and Metamorphism <i>Chp 8</i>	Connect reading assignment and quiz
Week 3 - 06/21	Lab #6. Sedimentary Processes, Rocks, and Environments.	Connect reading assignment and quiz
Week 4 – 06/24	Earthquakes and earth interior <i>Chp 12</i>	Connect reading assignment and quiz. <i>Review for Exam 2</i>
Week 4 - 06/25	Weathering, soil and unstable slopes <i>chp 15</i>	Connect reading assignment and quiz. <i>Review for Exam 2</i>
Week 4 – 06/26	Exam 2. Lab #7. Metamorphic rocks processes and Resources.	Connect reading assignment and quiz.
Week 4 – 06/27	Climate, weather and their influence on geology <i>Chp 13</i>	Connect reading assignment and quiz.
Week 4 – 06/28	Lab #8. Earthquake hazard and human risk, Topographic maps intro.	Connect reading assignment and quiz.
Week 5 – 07/01	Streams and flooding <i>Chp 16</i>	Connect reading assignment and quiz. <i>Term project due</i>
Week 5 – 07/02	Lab #9. Topographic maps	
Week 5 – 07/03	Lab #10. Stream processes, Landscapes, Mass Wasting and Flood Hazards lab.	Review for Final Exam
Week 5 – 07/05	Final Exam	Final Exam

Syllabus Modifications

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

Instructor's Practices and Procedures

Missed Assignments

Everybody in this class should complete all exams to have a final grade. Your instructor may allow makeups on a case-by-case basis. They are taken as soon as you show up in class.

Make-up exam is not a retake. That is, make-up exams are allowed only for missed exams.

Academic Integrity

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.

Here's the link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):

<http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/>

Attendance Procedures

Students are supposed to be on time for calls, and have a perfect attendance. Instructor will check attendance daily. No more than 3 excused absences are accepted. Failure to break the rule leads to student withdrawal from the course.

Student Conduct

Only good behavior is tolerated in class. Disruptive students will be dealt with according to the procedure showing on the Student code of conduct.

Instructor's Course-Specific Information (As Needed)

See grading formula above.

Regular and prompt classroom attendance is a critical component of the educational experience because it prepares you the student to be effective and a 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. Students are encouraged to attend class regularly, take notes and be prepared to engage in classroom discussions.

Electronic Devices

Cellphones should be on put on silent during class and lab meetings. No recording of lectures or taking pictures unless authorized to do so.

Geology Program Information

The Geology Program faculty are excited you are participating in this course! Please visit the Learning Web page to find additional information about the HCC Geology degree plan, links to Geoscience programs across Texas, careers in Geosciences, Diversity in Geosciences, and program contact information.

<https://learning.hccs.edu/programs/geology>

Additionally, students can find more information about Science, Technology, Engineering, and Math (STEM) opportunities and events on the HCC STEM page: <https://www.hccs.edu/stem>

HCC Policies

Here's the link to the HCC Student Handbook <http://www.hccs.edu/resources-for/current-students/student-handbook/> In it you will find information about the following:

Academic Information	Incomplete Grades
Academic Support	International Student Services
Attendance, Repeating Courses, and Withdrawal	Health Awareness
Career Planning and Job Search	Libraries/Bookstore
Childcare	Police Services & Campus Safety
disAbility Support Services	Student Life at HCC
Electronic Devices	Student Rights and Responsibilities
Equal Educational Opportunity	Student Services

Financial Aid TV (FATV)	Testing
General Student Complaints	Transfer Planning
Grade of FX	Veteran Services

EGLS₃

The EGLS₃ ([Evaluation for Greater Learning Student Survey System](#)) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS₃ surveys are only available for the Fall and Spring semesters. -EGLS₃ surveys are not offered during the Summer semester due to logistical constraints.

<http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/>

Campus Carry Link

Here's the link to the HCC information about Campus Carry:

<http://www.hccs.edu/departments/police/campus-carry/>

HCC Email Policy

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go [to HCC Eagle ID](#) and activate it now. You may also use Canvas Inbox to communicate.

Housing and Food Assistance for Students

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

Office of Institutional Equity

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (<http://www.hccs.edu/departments/institutional-equity/>)

disAbility Services

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/support-services/disability-services/>

Title IX

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and

personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross
Director EEO/Compliance
Office of Institutional Equity & Diversity
3100 Main
(713) 718-8271
Houston, TX 77266-7517 or Institutional.Equity@hccs.edu
<http://www.hccs.edu/departments/institutional-equity/title-ix-know-your-rights/>

Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

<https://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-complaints/speak-with-the-dean-of-students/>

Department Chair Contact Information

Chair of Department of Natural Sciences:
Dr. Kumela Tafa (kumela.tafa@hccs.edu) office phone: 713-718-5569