Course Syllabus

Physical Geology

GEOL 1403

Dr.Jalaluddin Qureshi

**Semester with Course Reference Number (CRN 46622)**

**Instructor contact information (713-718-7773; jalaluddin.qureshi@hccs.edu)**

**Office Location and Hours [By appointment only]**

**Course Location/Times [03:00am- 06-30 pm S.W. CAMPUS. ROOM S # 114 STAFFORD Campuses.**

**Course Semester Credit Hours (SCH) (lecture, lab) If applicable**

Credit Hours: 4

Lecture Hours: 3

Laboratory Hours: 3

**Total Course Contact Hours**

96.00

**Course Length (16 weeks)**

**Type of Instruction**

Lecture/Lab

**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.
2. **Course Student Learning Outcomes (SLO):**
3. 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 1.) Classify rocks and minerals based on chemical composition, physical properties, and origin.   
9. (Lab 2.) Apply knowledge of topographic maps to quantify geometrical aspects of topography.   
10. (Lab 3.) Identify landforms on maps, diagrams, and/or photographs and explain the processes that created them.   
11. (Lab 4.) 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 5.) Identify basic structural features on maps, block diagrams and cross sections and infer how they were created.   
13. (Lab 6.) Demonstrate the collection, analysis, and reporting of data.

Learning Objectives (Numbering system should be linked to SLO - e.g., 1.1, 1.2, 1.3, etc.)

(Instructors, you should add a few objectives to each of the course’s learning objectives above)

* 1. Difference between Scientific Module, Theory & Hypothesis

1.2 How Geology is studied- Present is the Key to the Past; UNIFORMITARIANISM Explained

2.1 History of Plate Tectonics via Continental Drift

2.2 Details of Plate Tectonics-why it is referred to as “Revolution in Earth Science”

3.1Study of EARTH MATERIAL

3.2 Minerals & Rocks- Identification; Classification & Interpretation

4.1Understanding GEOLOGIC TIME including Fundamentals of Geology

4.2 Lab based exercise’s to apply these principles

5.1 How to Read & Interpret Topographic Maps

6.1 Understanding major Tectonic Features via Rock Deformation> Structural Geology

7.1 Interior of the Earth including Earthquakes –Associated with Internal Processes

8.1 Understanding External Processes-landscape Developments

9.1 Inter-relationship between Geology & Energy [Coal, Oil & Natural Gas]

10. Preliminary Understanding of GEOLOGIC TIME SCALE & Principles Involved

Via lab based exercises

**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.

**Course Calendar**

1/21: Introduction / overview Course presentation, lab. Safety

1/26: Chapter 1: Earth Systems.

# LAB. Introduction. Laboratory equipment.

1/28 Chapter2: Plate Tectonics Theory

Lab excersise . Observing and measuring Earth Material Processes. (Geological Time scale)

02/02 Chapter 3: Minerals and Rock cycle

Lab # Plate tectonics and origin of Magma. (Fault, folds, origin of Magma)

02/04: Chapter 4: Igneous rocks **and Plutons .**

**Lab # Mineral Properties, Uses and Identifications. (Crystal Habitats, Mohs scale)**

**02/ 09:** Chapter 4: Igneous rocks

**02 / 11 : Lect. Exam # 1 ( Chapter 1- 4 )**

02 /18: Chapter 5: Volcanoes and volcanism.

Lab # Rock –Forming Processes and Rock cycle.

02/ 23 Chapter 7: Sediments and sedimentary rocks

Lab # igneous rocks and volcanic Hazard’s

02 / 25: Chapter 8: Metamorphic rocks.

Lab. Sedimentary Rocks processes and environments.

03 /02: Chapter 9: Deformation of rocks by faulting and folding.

Metamorphic Rocks, Processes, Dating of rocks, Fossil and geologic Events.

**03/ 04: Lect. Exam # 2 . ( Chapter 5,7.8,9 )**

03/ 09: Chapter 13: Earthquakes.

Lab. Topographic Map, s Aerial photographs and images.

03/ 11: Chapter 15: Weathering, Erosion, and mass wasting.

Lab # Stream Processes, Land scapes, Mass Wastage and Flood Hazards s

03/23/ Continue chapter 15 .

03/ 25: Chapter 16 Ground water .

**03 / 27 /2015 (world water day Conference) . Student should attend the conference and submit their comments .**

03/ 30 Chapter 17. Geologic Time, Concept and principles

04 /01 Chapter 12. Running water – Streams and river s.

04/ 06 / students assignments discussions.

04/ 08 visit of Natural History Museum bring Admission tickets ,photos .

04/ 13 students Power point presentations .

04/ 15 students power point presentations / discussion.

04 / 20 group discussion.

04/ 22 Switch Movie Part – 1.

04/27 22 Switch Movie Part – 2.

04 / 29 . Group discussion and submition of report s .

05/ 04 Discussion and revision of lectures. ( Disscussion seafloor spreading ,divergent boundryies , mantel convention ,chemical bound ,silicate minral, igneous rock texture , hotspot, physical weathering , soil profile, biochemical sedimentary rocks, types of Metmorphism, elastic rebound theory, seismograph, strike and dip, hydrological cycle, Rock cycle, Porisity and permibility, tides.

05/ 06 Review of final exam question, lab exercise and submit ion of reports , Students Homework signup sheet, Miscellaneous.

5/11/ 2015 : Final Exam.

**Note that your instructor reserves the right to change the schedule as needed at any point during the course.**

**Instructional Methods.**

In person .

**Student Assignments**

Students will be completing 5 assignments with each assignment given a minimum of 2 weeks for submittal. The assignments have to be typed and should not look sloppy. The subject matter for the assignment will be selected on the basis of on-going activity related to topics included under PHYSICAL GEOLOGY and should be completed on time, delivered on time and prepared “intelligently” [20% of total grade].

Submittal date for each assignment will be announced separately although as noted above the students will have a minimum time of 2 weeks to complete the project for the assignment.

**Student Assessment(s)**

Students will be assessed using Tests, Assignments, Lab Activity, Final Exam and a Field Project.

**Our goal will be to have a very “pro-active class” with frequent inter-actions between the students themselves and the instructor. Class “enthusiasm” will be an important part of the assessment.**

**Instructor's Requirements**

  (It is expected that the students come prepared, attend on a regular basis, pay attention to lectures, participate enthusiastically in the class activity and most importantly not cause a disturbance by talking with other student, getting up to go out in response to phone messages, use cell phone in the class and use computers to view other items during class period. Warnings may be issued to students who continue to indulge in such activities. If such activities persist, other measures may be warranted.)

**Program/Discipline Requirements: See Above**

**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. Collaborative group work is emphasized. You can learn from your classmates and them from you. There will be 2 Lab Exams, one on Minerals & Igneous Rocks and the second on Topographic Maps

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/>

**Grading Scale:**

A = 100- 89:

B = 88 - 79:

C = 78 - 70:

D = 68 - 59:

58 and below = F points per semester hour

FX (Failure due to non-attendance)

IP (In Progress)

W (Withdrawn)

I (Incomplete)

AUD (Audit)

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.

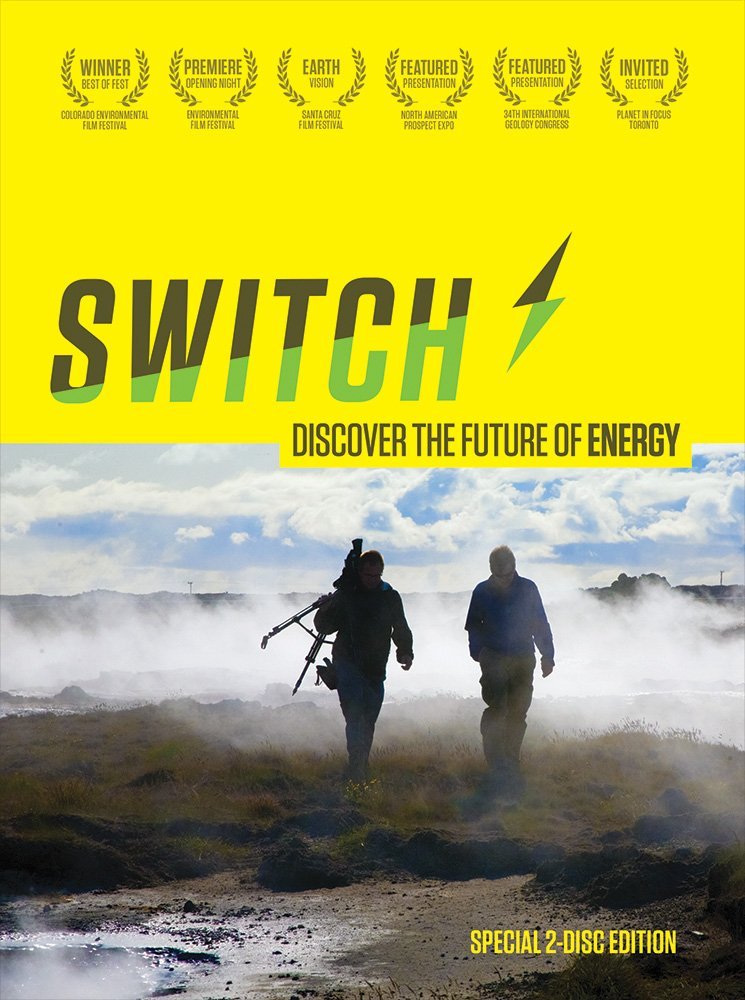
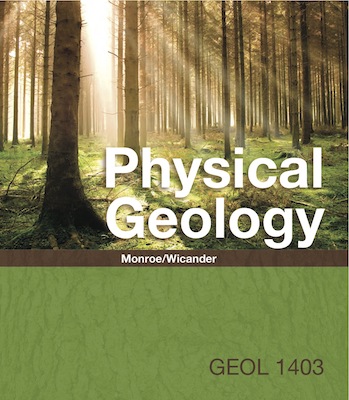
**Instructor Grading Criteria**

Students must adhere to the testing schedule. Failure to take a test will result in a “0”. Exceptions include work, family or personal (health) emergency and must be documented.

**ASSESSMENT ACTIVITY TOTAL GRADE %**

1. First Lecture exam and Lab exam 20%
2. Second Lecture and lab exam 20%
3. FINAL EXAM 20%
4. Assignments / Attendance 20 %
5. Switch Movie / Group project 20 %

**Instructional Materials**

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Textbook: *The Changing Earth, 6th ed.,* by Monroe & Wicander; Cengage, 2012 (ISBN 9781285914886) *This is a custom printed book. Loose-leaf 3-hole punched wrapped in plastic.* Custom book available at HCC bookstores. If students order this book elsewhere they will pay a lot more money because they will buy the entire book instead of just chapters 1-17.

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. Instructor fills in the name and phone number of your campus’ ADA contact person. **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](http://www.hccs.edu/district/students/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 withdrawal deadline is March 24, 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***](http://imc02.hccs.edu/gcac/drop2.htm)***.***

***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

**EGLS3 -- 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.