

JEFFERSON COLLEGE

COURSE SYLLABUS

PHY 105

PHYSICAL GEOLOGY

4 Credit Hours

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Revised by: Maryanne Angliongto
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Minor Revision or Update by: Fran Moore
Per Curriculum Committee Process Change: April 25, 2018

Ms. Constance Kuchar, Interim Division Chair, Math & Science
Ms. Shirley Davenport, Dean, Arts & Science Education

PHY105 Physical Geology

I. CATALOG DESCRIPTION

- A. Prerequisite: Reading proficiency
- B. 4 semester hours credit
- C. Physical Geology is a General Education course which is designed to acquaint students with the geologic processes that affect the surface and interior of the earth. Three lectures and one two-hour lab per week. Two six-hour field trips are included as part of the lab. This course fulfills the laboratory science requirement for the Associate of Arts degree (S)
- D. Curricular alignment:
 - Fulfills part of Natural Sciences (Physical Sciences) with lab CORE requirement for AA, AAT, AFA, and select AAS degrees: MOTR GEOL 100L Geology with Lab
 - Elective course applies toward AA or AAT degree.

II. EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

Expected Learning Outcomes	Assessment Measures
Identify 15 common minerals and 15 common rocks	Labs, exams, and final exam
Develop a reasonable sequence of geological events from a stratigraphic section	Assignments, exams, and final exam
Explain the processes which shape the earth's surface	Assignments, labs, exams, and final exam
Read and interpret a topographical map	Labs, exams, and final exam

III. OUTLINE OF TOPICS

- A. Science and the scientific method
 1. The nature of science
 2. The scientific method
- B. Structure of the earth
 1. Earth's internal structure
 2. Evolution of earth over time
 3. Weathering, erosion, and mass movement (mass wasting)
 4. The hydrologic cycle
- C. Plate tectonics theory
 1. Historical understandings of the origin of earth and continental drift hypothesis
 2. Evidence for plate tectonics
 3. Activity at plate boundaries

D. Matter and minerals

1. The structure of an atom and how atoms bond
2. Definition of a mineral
3. The relationship of minerals to rocks
4. Common silicate and non-silicate minerals

E. The rock cycle

1. Products and processes of the rock cycle
2. Igneous rock texture and composition
3. The origin of magma
4. The nature of intrusive and extrusive igneous processes and landforms
5. Common volcanic landforms and volcanic hazards
6. Formation, properties, and classification of sedimentary rocks
7. Metamorphic processes

F. Geologic time

1. Formation of planet earth from the solar nebula
2. Age of the earth as determined by scientific means and divide geologic time into the established eras, periods, and epochs of the geologic time scale
3. Using both relative and radiometric dating and fossil evidence to construct a history of the earth

IV. METHODS OF INSTRUCTION

A. Lecture

B. Laboratories

C. Textbook

D. Classroom discussions

V. REQUIRED TEXTBOOK

Lutgens, Frederick K.; *Essentials of Geology* (current edition). Boston: Pearson.

VI. REQUIRED MATERIALS

None

VII. SUPPLEMENTAL REFERENCES

None

VIII. METHODS OF EVALUATION

- A. Exams
- B. Laboratories
- C. Assignments / pop-quizzes
- D. Final

IX. ADA AA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (TC 101; phone 636-481-3169).

X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook (see College website, <http://www.jeffco.edu>).

XI. ATTENDANCE STATEMENT

Regular and punctual attendance is expected of all students. Any one of these four options may result in the student being removed from the class and an administrative withdrawal being processed: (1) Student fails to begin class; (2) Student ceases participation for at least two consecutive weeks; (3) Student misses 15 percent or more of the coursework; and/or (4) Student misses 15 percent or more of the course as defined by the instructor. Students earn their financial aid by regularly attending and actively participating in their coursework. If a student does not actively participate, he/she may have to return financial aid funds. Consult the College Catalog or a Student Financial Services representative for more details.

XII. OUTSIDE OF CLASS ACADEMICALLY RELATED ACTIVITIES

The U.S. Department of Education mandates that students be made aware of expectations regarding coursework to be completed outside the classroom. Students are expected to spend substantial time outside of class meetings engaging in academically related activities such as reading, studying, and completing assignments. Specifically, time spent on academically related activities outside of class combined with time spent in class meetings is expected to be a minimum of 37.5 hours over the duration of the term for each credit hour.