I. **A. CATALOG DESCRIPTION:**

Division: Science and Math
Department: Geology
Course ID: GEOL 101
Course Title: Introduction to Physical Geology
Units: 3
Lecture: 3 hours
Prerequisite: None
Departmental Advisory: ENGL 015 or eligibility for ENGL 101 as determined through the SBVC assessment process.

B. Course Description:

An introduction to the study of the earth with emphasis on the materials that make up the earth; plate tectonics; the process that created the continents and the ocean basins; and the processes that change the landscape. Laboratory study is closely coordinated with the lecture.

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II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS

Upon completion of the course, the student will be able to:

A. describe the general internal structure of the earth,
B. understand the origin and significance of the three fundamental rock types,
C. identify the major processes of erosion, mass wasting, and weathering,
D. understand the reason for ocean basins and continents, and the process that continues to create new oceanic crust, and
E. describe the geologic nature of faculty and folded structures and the processes that cause earthquakes.

ADVISORY ENTRANCE SKILLS

Before attempting this class students should be able to:

A. read actively, annotating and paraphrasing the text,
B. summarize accurately,
C. evaluate evidence for relevance to one's purpose,
D. distinguish between facts, opinions, assumptions, and inferences,
E. understand a common English vocabulary equivalent to a High School Education,
F. be able to assimilate a new technical vocabulary appropriate to the subject matter,
G. organize information around a central idea,
H. select and present relevant evidence to support a proposition,
I. create a focused thesis statement, and
J. write sentences free of gross grammatical errors.

IV. CONTENT:

A. The Third Planet
   1. Earth in Space: The Science of the Earth System
   2. Earth's Materials: Atoms, Elements, Minerals, and Rocks
   3. Earth in Time: The Rock Record and Geologic Time

B. The Dynamic Earth
   1. Plate Tectonics: A Unifying Theory
   2. Earthquakes and the Earth's Interior
   3. From the Earth's Interior: Volcanoes and Igneous Rocks

C. The Changing Earth
   1. Weathering and Erosion
   2. From Sediment to Rock: Rocks That Form Near the Earth's Surface
   3. Folds, Faults, and Geologic Maps
   4. Metamorphism: Making New Rock from Old
   5. The Rock Cycle Revisited

D. Water World
   1. Water On and Under the Ground
   2. Oceans, Winds, Waves, and Coastlines
   3. Deserts, Glaciers, and Climatic Change

E. Living On Planet Earth
   1. A Brief History of Life on Earth
   2. Earth Resources
   3. The Role of Geo-scientists in the 21St Century

V. METHODS OF INSTRUCTION:

Lecture, including directed discussion, instructor-guided investigations, instructor-moderated problem solving sessions, and audio-visual aids-including computer-generated lecture outlines, supervised illustration of major features.

VI. TYPICAL ASSIGNMENTS:

A. Reading Assignments
   1. Selected assignments from the textbook
   2. Articles covering current events in geology (landslides, earthquakes, volcanic eruptions, floods) as well as long-term events (for example, natural resource depletion, environmental effects of mining and processing ores).

B. Writing Assignments
   1. Selected chapter exercises from the textbook.
   2. Instructor-prepared exercises, especially those involving illustrations (maps, charts, diagrams, cross-sections) and their analysis.
   3. A written term project, either a research paper or a group project, showing synthesis of the concepts and processes covered in the course.

C. Example

   Choose one of the magazine or newspaper articles on the reading list and analyze the following:
   1. Scientific accuracy
   2. Topic of study in this course
   3. What was reinforced as learned in this course
   4. What was new information for you
   5. Prepare a written summary and 3-5 minute class presentation.

VII. EVALUATION:

A. Methods of evaluation:
   1. Written quizzes and/or tests of a variety of types of questions from among true-false,
      multiple choice, fill-in, sentence completion, and short essay.
   2. Written exercises.
   3. Written summaries of magazine or newspaper articles.

B. Frequency of evaluation:
   1. Quizzes are at the end of each major section.

C. Typical exam questions
   1. Draw a simple diagram and identify the four major subdivisions of the earth's interior.

2. In the list below, identify the landforms that are erosional and those that are depositional
   a. Terminal Moraines
   b. Cirques
   c. Deltas
   d. "V"-shaped Valleys
   e. Sink holes
   f. Stalactites
   g. Offshore Bars
   h. Alluvial Fans
   i. Pediments
3. Describe the major geologic features produced by converging plate boundaries.
4. Given the indicated area on the geological map and the aerial photo on the table, identify the principle geologic process responsible for the landforms represented.

VIII. TYPICAL TEXTS:

Plummer, McGeary, and Carlson, *Physical* Geology, 1st ed., WCB McGraw-Hill, 1999.
Murck and Skinner, *Geology Today, Understanding Our Planet*, 1st ed., John Wiley and Sons, 1999.
Chernicoff, Essentials of Geology, 2nd ed., Houghton Mifflin, 2000.

IX. OTHER SUPPLIES REQUIRED OF STUDENTS: None.