



**Purpose:** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

**Course Title** – Physical Geology

**Course Prefix and Number** – GEOL 1303

**Department** - Geology

**Division** – Math and Science

**Course Type:** (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y  or N )

**Semester Credit Hours # : Lecture hours# : Lab/other hours #**     **3:3:0**

**Equated Pay hours for course -** 3

**Course Catalog Description** – Introduction to the materials, processes, and structure of the earth. Topics include continental drift, earthquakes, glaciations, mineral resources, mountain building, oceans, volcanoes, weathering, and erosion. GEOL 1103 must be taken with this course to fulfill the 4 semester credit hour requirement for natural science in a degree plan.

List Lab/ Other Hours
Lab Hours
Clinical Hours
Practicum Hours
Other (list)

**Prerequisites/Co requisites** – THEA Reading and Writing requirement met

Type: ACAD

**Prepared by** Danny Glenn

**Date** 02/20/2012

**Reviewed by department head** Danny Glenn

**Date** 02/20/2012

**Accuracy verified by Division Chair** Kevin Dees

**Date** 4/12/12

**Approved by Dean of Vocational Instruction or Vice President of Instruction** Lac

**Date** 11-9-12



**I. Topical Outline** – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

Course Objectives:

- A. General
  - 1. The importance of physical geology and applications to everyday life.
  - 2. The acquisition of theoretical concepts and their impact on the social environment of mankind.
- B. Specific
  - 1. To provide an understanding of physical geology at an entry level for majors and non-majors.
  - 2. To emphasize the physical and chemical phenomena that have formed the earth from its beginning and present.

Topical Outline (major areas of coverage):

Lecture Topics:

- Introductory Material Chapter 1
- History of the Universe Chapter 1
- Minerals Chapter 2
- Igneous Rocks and Plutons Chapter 3
- Volcanism Chapter 4
- Weathering, Erosion, and Soil Chapter 5
- Sediment and Sedimentary Rocks Chapter 6
- Metamorphism and Metamorphic Rocks Chapter 7
- Geologic Time Chapter 8
- Earthquakes Chapter 9
- Earth's Interior Chapter 10
- The Seafloor Chapter 11
- Plate Tectonics: A Unifying Theory Chapter 12
- Diastrophism Chapter 13
- Mass Wasting Chapter 14
- Running Water Chapter 15
- Groundwater Chapter 16
- Glaciers and Glaciation Chapter 17
- Deserts Chapter 18
- Coastlines Chapter 19
- Economic Resources Current Published Data

## II. Course Learning Outcomes

Course Learning Outcome	Method of Assessment
<ul style="list-style-type: none"> <li>• Recognize the importance of physical geology and relate applications to everyday life.</li> <li>• Assess the acquisition of theoretical concepts of science and their impact on the social environment of mankind.</li> <li>• Demonstrate an understanding of physical geology at an entry level, which will serve as a foundation for further studies in earth science if the student chooses so.</li> <li>• Be able to interpret the relationships within physical geology and connections between earth's beginning and present.</li> </ul>	<ol style="list-style-type: none"> <li>1. Exams and term paper are based on classical geology as well as current geologic problems.</li> <li>2. The student is tested over the Scientific Method of problem solving and how it relates to everyday life problems.</li> <li>3. The student's exams and term papers reflect basic foundations of all branches of geology.</li> <li>4. The student's exams and term paper assignments reflect basic concepts including the connections between earth's beginnings and the present.</li> </ol>

## III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

Physical Geology: Exploring the Earth, Geology of Texas Edition, by Monroe, Wicander, Hazlett, and Ferring, 2007. ISBN: -13: 978-0-495-30072-4

## IV. Suggested Course Maximum - 40

## V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

Appropriate classroom and designated laboratory room equipped with specimens of rocks, minerals, fossils, and geologic maps. A room that has a computer with internet access and TV/VCR/DVD capability should be available for all sections as well.

## VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

### A. Examinations

Major lecture exams may be in the form of essay questions, fill in the blank, multiple-choice, matching, or any combination of these formats. The number of major examinations, quizzes, and outside projects are to be as follows:

1. There will be 3 to 4 major lecture examinations spaced throughout the semester
2. Other grades during the semester may consist of a term paper.  
Multiple quizzes, or other department approved projects may be assigned but the numerical grade(s) of these items averaged together will carry the weight of a lecture exam.
3. Items 1 and 2 above carry the weight of 75% of the students lecture average for the semester and constitute what is called the LECTURE AVERAGE.
4. The comprehensive final examination alone will constitute 25% of the student's grade for the semester.
5. Items 3 and 4 above constitute 100% of the student's OVERALL AVERAGE and grade for the semester.

B. The instructor will record numerical grades of the student's exam/quiz/project scores. The instructor will never record student's grades as only letter grades such as A+, B, C-, etc. The actual

numerical grade will be put on each item the student turns in to the instructor. After showing the grade(s) to the student(s), the only grade that the instructor will record in the numerical grade.

C. No instructor shall at any time allow a student access to another student's grade, visually or verbally.

D. There will be no deviance from the following grading scale for exams or semester grades.

Grade Scale  
90 – 100 = A  
80 - 89 = B  
70 - 79 = C  
60 - 69 = D  
Below 60 = F

## VII. Curriculum Checklist

- **Academic General Education Course** (from ACGM – but not in WCJC Core)  
No additional documentation needed

- **Academic WCJC Core Course**  
Attach the Core Curriculum Checklist, including the following:

- Basic Intellectual Competencies
- Perspectives
- Exemplary Educational Objectives

- **WECM Courses**  
If needed, revise the Program SCANS Matrix & Competencies Check



**Page 1: Competencies**

Course Prefix & Number: GEOL 1303	
Competency	Method of Assessment
READING: Reading at the college level means the ability to analyze and interpret a variety of printed materials – books, articles, and documents.	
WRITING: Competency in writing is the ability to produce clear, correct, and coherent prose adapted to purpose, occasion, and audience.	Students are required to write a term paper over a geologic topic assigned to them. This paper counts as a major exam grade.
SPEAKING: Competence in speaking is the ability to communicate orally in clear, coherent, and persuasive language appropriate to purpose, occasion, and audience.	
LISTENING: Listening at the college level means the ability to analyze and interpret various forms of spoken communication.	
CRITICAL THINKING: Critical thinking embraces methods for applying both qualitative and quantitative skills analytically and creatively to subject matter in order to evaluate arguments and to construct alternative strategies.	
COMPUTER LITERACY: Computer literacy at the college level means the ability to use computer-based technology in communicating, solving problems, and acquiring information.	Exams are centered around Blackboard notes available to the student online.



**Page 2: Perspectives**

Course Prefix & Number: GEOL 1303	
Perspective	Method of Assessment
1. Establish broad and multiple perspectives of the individual in relationship to the larger society and world in which he or she lives, and help the student to understand the responsibilities of living in a culturally- and ethically-diversified world;	
2. Stimulate a capacity to discuss and reflect upon individual, political, economic, and social aspects of life to understand ways to be a responsible member of society;	
3. Recognize the importance of maintaining health and wellness;	
4. Develop a capacity to use knowledge of how technology and science affect lives;	Exam questions cover the use of technology for the acquisition of knowledge using the "Scientific Method".
5. Develop personal values for ethical behavior;	
6. Develop the ability to make aesthetic judgments;	Exams cover presentations geared toward economic resources such as gemstones and precious metals with respect to their value reflecting their natural beauty (esp. crystal formation).
7. Use logical reasoning in problem solving;	Some exams deal with "puzzle-like" diagrams to solve geochronology problems. Logical thought is taught and must be used to solve the exam problems.
8. Integrate knowledge and understanding of the interrelationships of the scholarly disciplines	All exams reflect the eclectic nature of geology, drawing upon many scientific disciplines such as biology, astronomy, physics, mathematics, etc.



**Page 3: Exemplary Educational Objectives**

Course Prefix & Number: GEOL 1303	
<b>Component Area: Natural Sciences</b>	
Exemplary Educational Objective	Method of Assessment
1. Understand and apply method and appropriate technology to the study of natural science.	Use of "Scientific Method" is stressed in lab exams and lecture exam questions. In the lab, chemical and physical processes are learned to identify certain compounds, minerals, rocks, etc. Exams contain these topics.
2. Recognize scientific and quantitative methods and the difference between these approaches and other methods of inquiry; and communicate findings, analyses, and interpretations both orally and in writing.	Dimensional analysis, logic problems, and other quantitative approaches are used to emphasize uses of scientific methods and approaches of problem solving. Exams and term papers reflect this.
3. Identify and recognize the differences among competing scientific theories.	All pertinent opposing theories are presented (i.e. evolution vs. creationism) and many students opt to use this for term paper topics. Exam questions and paper topics exemplify contrasting theories.
4. Demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.	Current topics in World Geology are discussed as to socio-political concerns (i.e. oil reserves, gold availabilities) and incorporated into exam questions and paper topics.
5. Demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.	The eclectic nature of Geology allows for the exam questions to be taken from many different scientific disciplines, which have contributed to the development of technological advances from plastics to computers.