Office of Academic Affairs  
Tarleton State University  
August 2004

Master Course Syllabus

**Department:** Chemistry and Geosciences  
**Course Prefix/Number:** GEOL 3064  
**Official Course Title:** Igneous and Metamorphic Petrology

Master Syllabus Approved by Department on:  
Month  Day  Year

I. Catalog Description

An introduction to the origin, characteristics, and associations of igneous and metamorphic rocks. Introduction to igneous phase diagrams and metamorphic phase equilibria.

II. Prerequisites

GEOL 2034

III. Expanded Course Description

Igneous and Metamorphic Petrology is a course about the characteristics and origins of the igneous and metamorphic rocks. Metamorphic topics include types of rocks, textures of rocks, metamorphic mineralogy, and processes which create and alter metamorphic rocks. Igneous topics include types and textures of rocks, igneous mineralogy, and melting, alteration, and crystallization processes of magmas and lavas. The lab associated with the course emphasizes the study of optical properties of minerals with polarizing microscopes, and igneous and metamorphic petrography (the study of rocks in thin section).

IV. Intended Student Learning Outcomes

**Knowledge outcomes**

Upon completion of this course students will:

* understand how igneous and metamorphic rocks are formed
* understand the processes that alter and create the textures of igneous and metamorphic rocks
* understand the environmental and economic importance of igneous and metamorphic rocks

**Skill outcomes**

Upon completion of the course students will:

* be able to use chemical data to analyze igneous and metamorphic rocks
* be able to recognize the common types of igneous and metamorphic rocks
* be able to identify the common igneous and metamorphic minerals with a petrographic microscope
* be able to manufacture a thin section
* be able to study igneous and metamorphic rocks in thin section

**Value outcomes**
Upon completion of this course students will:
* be able to understand the critical importance of igneous and metamorphic processes and rocks on Earth’s geological evolution

V. **Unless stipulated in this master syllabus by the department, the following items are subject to faculty discretion in each faculty member’s individual course outline/syllabus:**

**Course Requirements** (grading/evaluation procedures; class attendance policy; term papers; projects; field assignments; examinations; class participation; etc)

A combination of lecture exams (2 to 4), lab exams (2 to 4), lab exercises (8-12), and field trips (1-3).

**Required texts**

A lecture text or texts on igneous petrology and metamorphic petrology; and a lab text on optical mineralogy.

Department Head Signature/Date

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Signature       Date