Submitted by: Chuck Whipkey  Date Prepared: 8/30/2013

Department/Discipline and Course Number: Earth and Environmental Sciences/GEOL 301

Course Title: Mineralogy

**Type of change (check all applicable):**

- Course Number*  
- Title  
- Credits  
- Description  
- Prerequisites  
- X Deletion

*This course number must be approved by the Office of the Registrar before the proposal is submitted.

**Effective Date:** FALL Semester, Year  2014

<table>
<thead>
<tr>
<th>Current Catalog Entry</th>
<th>Proposed Catalog Entry</th>
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<tbody>
<tr>
<td>301 – Mineralogy (4)</td>
<td>301 – Mineralogy (4)</td>
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<tr>
<td>Prerequisite: GEOL 111 or EESC 110. Recommended: CHEM 112. Study of Earth’s major rock forming minerals, and those of economic value, in hand sample, microscopic thin section and through field studies. Course is conducted as a mix of lecture and laboratory activities. Laboratory.</td>
<td>Prerequisite: GEOL 111 or EESC 110; prerequisite or corequisite: CHEM 111. Study of Earth’s major rock forming minerals, and those of economic value, in hand sample, microscopic thin section and through field studies. Course is conducted as a mix of lecture and laboratory activities. Laboratory.</td>
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**JUSTIFICATION** (including impact on majors, minors, concentrations, and general education courses within the University curriculum; attach additional pages if required)

Please see attached sheet.

**TRANSITION PLAN** (describe how will students who are in Catalogs where the course is required for a major be accommodated; attach additional pages if required)

GEOL 301 is required for Environmental Geology and Geology majors. Because provision is made in this proposal for CHEM 111 to be taken concurrently with GEOL 301, all current and new majors will be able to take both courses during the Fall 2014 semester. All of our majors will be informed, through advising, of the coming change.

**Approvals**

Department Chair  
Date: 9-4-2013

College Curriculum Chair  
Date:  

Expedited course changes are posted for a 10-class day comment period. If no comments are raised during that time, the proposal becomes final. All expedited proposals approved in this way will be noted on the UCC web site.

If comments are raised, the proposal may be reviewed by the UCC and then approved or it may be returned to the CCC for additional deliberation (as required).

Expedited Course Change Cover Sheet (July 2013)
Proposal: CHEM 111 (General Chemistry 1) should be made a co-requisite or prerequisite for GEOL 301 (Mineralogy).

Rationale: Knowledge of introductory chemistry is necessary for an understanding of concepts presented in Mineralogy. In particular, principles covered in CHEM 111, including the nature of ionic and covalent bonding, chemical reactions, and chemical equations, form the basis for a great deal of Mineralogy. The underlying structures of minerals are the crystal lattices formed by the periodic arrangement of ionically or covalently bonded atoms, and the geometry of these structures are directly related to the chemical properties of the atoms. In addition, basic knowledge of chemical principles is essential for understanding the many ways minerals are created in nature, (e.g. crystallization from molten magma, precipitation from aqueous solutions, and solid state alterations). Currently a great deal of class time in Mineralogy is taken up in explaining chemical principles, and even then, the coverage is necessarily brief. Requiring CHEM 111 as a co- or prerequisite for Mineralogy will free up valuable class time and greatly increase our students' comprehension of the course content.

Ideally, we would prefer that students complete CHEM 111 before taking Mineralogy. However, this is not practical because many students decide on their Geology major relatively late in their college careers and may not have enough time remaining at UMW to complete their degree in that case. After reviewing CHEM 111 syllabi, our department believes that allowing our students to take CHEM 111 as a co- or prerequisite to Mineralogy is adequate for understanding the material presented in this course because many of the basic concepts needed for Mineralogy are covered fairly early in CHEM 111.

Impact: This change will have no impact on other majors, minors, or concentrations. We have described our proposed changes to Leanna Giancarlo, Chair of Chemistry, and she has assured us that the impact will be minimal on her department, partly because our department’s other majors, including Environmental Geology, already require CHEM 111, and also because many of our Geology majors already take CHEM 111 at the urging of their advisors.