Request for Courses in the Core Curriculum

Originating Department or College: Department of Biology and Chemistry, College of Arts and Sciences

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Course Number and Title: GEOL 1303 Physical Geology Lecture

Student Learning Objectives: Upon successful completion of this course, students will be able to:

1. Use critical thinking and the scientific method to examine questions relating to geology.
2. Collaborate effectively on a research project.
3. Communicate scientific information both verbally and through written reports.
4. Review and demonstrate a knowledge of fundamental earth science principles
5. Define and discuss geological processes that alter the earth's surface.
6. Develop the ability to classify earth materials.

Core-Curriculum Learning Outcomes:

1. Critical Thinking: includes creative thinking, innovation, inquiry and analysis, evaluation, and synthesis of information. (SLOs: 1, 5, 6)
2. Communication Skills: Students will demonstrate their ability to communicate effectively by using written communication. (SLOs: 3, 5)
3. Empirical and Quantitative Skills: includes the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLOs: 1,2)
4. Teamwork: includes the ability to work effectively with others to support a shared goal. (SLOs: 2)

Component Area for which the course is being proposed (check one):

___ Communication  ___ American History
___ Mathematics  ___ Government/Political Science
___ Language, Philosophy, & Culture  ___ Social & Behavioral Science
___ Creative Arts  ___ Component Area Option
_X_ Life & Physical Sciences

Competency areas addressed by the course (refer to the appended chart for competencies that are required and optional in each component area):

_X_ Critical Thinking  ___ Teamwork
_X_ Communication Skills  ___ Personal Responsibility
_X_ Written Communication  ___ Social Responsibility
___ Oral Communication
___ Visual Communication
_X_ Empirical & Quantitative Skills
Because we will be assessing student learning outcomes across multiple core courses, assessment assigned in your course must include assessment of the core competencies. For each competency checked above, indicate the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

Critical Thinking:
Prior to the exam, students will be given a “Earth Composition” problem, where they will be asked the question “How can we determine the composition of the internal regions of our planet?” The students will be assigned to break into groups and use critical thinking skills to determine what methodologies are used to determine rock types in inaccessible regions of the earth and their limitations. As a component the following exam, students will be given a two part essay question concerning this question. A critical thinking rubric with domains for creative thinking, depth of inquiry, evaluation of importance and synthesis of information can be scored from the essay response, or the essay can be uploaded for evaluation by the Core Curriculum Assessment Committee.

Communication Skills:
On the exam, for the second part of the “Earth Composition” problem, students will be asked write an essay discussing how the velocity of seismic waves through different rock types is used to determine the internal composition of the planet and to identify factors that can confound their calculations. The instructor can score the written essay for organization, focus, style and grammar using a modified WIN rubric, or the written essay can be uploaded for evaluation by the Core Curriculum Assessment Committee.

Empirical & Quantitative Skills:
On the exam, for the first part of the “Earth Composition” question, students will be asked to calculate density and composition of rock formations based on seismic wave velocities. The instructor can assess the logical reasoning behind the calculation and extrapolations, or the students’ answers can be uploaded for evaluation by the Core Curriculum Assessment Committee.

Teamwork:
The same “Earth Composition” assignment can be used to assess teamwork as well. The students will be given a survey to assess their participation on the project as well as an evaluation of their each member’s contribution.

Personal Responsibility: N/A

Social Responsibility: N/A

Will the syllabus vary across multiple sections of the course? ___ Yes ___ X___ No

Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every five (5) years.

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their courses.

Reviewed and approved by the Core Curriculum Committee on February 15, 2013.