

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 1305 Environmental Geology Lecture

Please attach in separate documents:

Completed Catalog Add/Change Form

Syllabus

List the student learning outcomes for the course (Statements of what students will know and/or be able to do as a result of taking this course. See appended hints for constructing these statements.)

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 atmospheric science.
2. Collaborate effectively on a research project.
3. Communicate scientific information both verbally and through written reports.
4. Review and demonstrate knowledge of fundamental earth science principles.
5. Define, quantify and communicate 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, 2)
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: 4,5)
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

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):

Critical Thinking

Teamwork

Communication Skills

Personal Responsibility

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 “Resonance Time” problem, where they will be asked the question “What are the factors that determine the resonance time for a given water molecule in a reservoir.” The students will be assigned to break into groups and use critical thinking skills to determine how to calculate resonance time and what conditions impact those calculations. As a component of 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 up loaded for evaluation by the Core Curriculum Assessment Committee.

Communication Skills:

On the exam, for the second part of the “Resonance Time” problem, students will be asked write an essay discussing the environmental conditions that affect resonance time and use that to explain why the smallest reservoirs are the most critical to the existence of life on this planet. The instructor can score the written essay for organization, focus, style and grammar using a modified WIN rubric, or the written essay can be up loaded for evaluation by the Core Curriculum Assessment Committee.

Empirical & Quantitative Skills:

On the exam, for the first part of the “Resonance Time” question, students will be asked to specifically calculate the average time that a given molecule is expected to remain in a reservoir under a suite of conditions. The instructor can assess the logical reasoning behind the calculation and extrapolations, or the students’ answers can be up loaded for evaluation by the Core Curriculum Assessment Committee.

Teamwork:

The same “Resonance Time” 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

If yes, list the assignments that will be constant across the sections:

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.