Foundational Component Area: Life and Physical Sciences

In the box below, describe how this course meets the Foundational Component Area description for Life and Physical Sciences. Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

How does the proposed course specifically address the Foundational Component Area definition above?

**GEOG 203** focuses on describing and explaining the earth’s surface. We group the surface features into three broad categories (climates, ecosystems, and landforms) that correspond with the three major subdisciplines of contemporary physical geography, namely, climatology, biogeography, and geomorphology. In this course we describe the earth’s surface and seek a conceptual understanding of how surface features develop. We use a problem-based approach, as science is at its core a problem-centered endeavor. Students use graphs, maps, quantitative expressions, and conceptual models to understand and predict how earth surface systems operate. Students also gain an understanding of how earth systems (atmosphere, hydrosphere, biosphere, lithosphere) interact to form the landscapes we observe, and how human societies interact with these natural systems. Human interactions with their environments is a fundamental theme in geography.

**Core Objectives**

Describe how the proposed course develops the required core objectives below by indicating how each learning objective will be addressed, what specific strategies will be used for each objective and how student learning of each objective will be evaluated.

**Critical Thinking (to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information):**

Students complete problem-based homework assignments that entail learning fundamental concepts and applying these concepts to various hypothetical and actual scenarios. Problem-solving lies at the heart of scientific inquiry; by using a problem-based approach the students gain general insights about how science is conducted, in addition to specific insights about concepts in physical geography. Class lectures emphasize problem-solving and the development of a general conceptual framework for understanding topics. The quizzes, tests, and in-class activities reinforce problem-solving, creative thinking, analysis, synthesis, concepts, etc.

**Communication (to include effective development, interpretation and expression of ideas through written, oral and visual communication):**

Physical geography is a visual discipline, as it deals with maps and other representations of the earth’s surface (e.g., satellite images, photographs). It also entails graphical characterizations of processes and patterns. Students learn to interpret and synthesize the information contained in these characterizations via lecture material, homework assignments, in-class activities, and tests. They also conduct their own mapping and graphing, and communicate their interpretations in writing, particularly in the context of in-class and homework assignments. The in-class problem-solving exercises involve teamwork in which the students communicate orally with other group members, and also with the entire class at the completion of the teamwork phase of the exercise.

**Empirical and Quantitative Skills (to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions):**
Texas A&M University

Core Curriculum

Initial Request for a Course Addition to the Fall 2014 Core Curriculum

Students encounter observable acts about the earth’s surface in every component of the course, whether lectures or reading assignments or tests. They grapple with linking conceptual models to empirical facts. Quantification is an inherent part of characterizing and mapping surface features (e.g., global temperature patterns, biodiversity gradients, stream discharge) and of describing concepts (e.g., through equations describing relationships between variables).

Teamwork (to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal):

Teamwork is integrated into the in-class problem-solving exercises and some of the homework assignments through group exercises, wherein team members collaborate to identify solutions to problems they are given. Each team member contributes insights and information, which are synthesized by the members and summarized in a short report. Students learn the role and limitations of abstract concepts and empirical observations as they relate to problem-solving and to reconciling different points of view about physical geography topics. They also identify and report areas of uncertainty that prevent consensus. The contributions of each student to the process will be assessed by the observations of the instructor, by peer review, and by the student’s own reflections.

Please be aware that instructors should be prepared to submit samples/examples of student work as part of the future course recertification process.