Texas A&M University

Core Curriculum

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

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. The proposed course must contain all elements of the Foundational Component Area. How does the proposed course specifically address the Foundational Component Area definition above?

PHYS 202 College Physics. PHYS 202 teaches fundamental laws of physics and their application to electricity, magnetism, optics and modern physics. The physics concepts and laws are related to real-world phenomena and technology. The course includes applications of the Scientific Method and its use in the development of scientific theories. The laboratory and in-class lecture lecture demonstrations connect the concepts developed in the course to real-world phenomena that are part of students’ experiences.

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.

The proposed course is required to contain each element of the Core Objective.

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

Problem solving is a primary emphasis of the course. Students are taught how to apply physics laws and concepts to solving problems and analyzing data.

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

Written communication is developed by teaching students to present their solutions to problems in a clear and logical fashion. This is tested on exams. Graded homework problems include essay questions. Visual communication skills are developed in the course through the construction and interpretation of graphical presentations of data. Students are taught that constructing diagrams and sketches is an important component of problem solving. Verbal communication skills are developed through in-class discussions. In addition, the first hour of the laboratory period is used for recitation, where assigned homework problems are discussed, in the context of the concepts presented in the lecture portion of the course. And in the laboratory portion of the course, taking data, analyzing data and writing the lab report requires discussion between the two lab partners.

Empirical and Quantitative Skills (to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions):

Homework and exam problems include analysis of data and numerical information. In the laboratory data is collected and analyzed and conclusions are reached.
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Teamwork (to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal):

The laboratory is conducted by teams of two students. The two members of the team must work together to collect and analyze data and to draw conclusions. Discussion in lecture and recitation involves considering different ways to approach a problem and working together to achieve the solution.

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