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.

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

Biology 111 is the first half of an introductory two-semester survey of contemporary biology that covers the chemical basis of life, structure and biology of the cell, molecular biology and genetics including the role of biotechnology in molecular genetics. Course includes a weekly laboratory that emphasizes the scientific method to reinforce and provide supplemental information related to the lecture topics.

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):

The scientific method is the fundamental basis of both lecture and lab. Lectures discuss knowledge obtained from interpreting results of historical scientific experiments and allow students to explore the implications of alternative outcomes. Lecture exams include questions to assess students' ability for critical thinking and analysis and their capacity for synthesizing information presented at different times during the course. The laboratory component of the course include hands-on practice and evaluation of exercises based on the scientific method including the indentification of specific hypotheses, analysis of data from in-lab exercises, interpretation of results, formulation of exercise related questions, weekly quizzes, and written homeworks and lab reports.

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

Homework assignments and lab reports require written interpretation of the results of the laboratory exercises. Labs conclude with an instructor/student interactive summary during which students orally respond to and ask questions. Both lecture and lab utilize visual communication through interpretation of data presented in graphs, tables, and figures.

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

All lab exercises involve the generation and/or manipulation and analysis of of exercise-specific numerical data. As described above, these are then summarized in tabular and/or graphic form for homeworks, lab reports, quizzes and practical exams. Certain lecture topics, particularly in biological chemistry and genetics, also require students to manipulate and interpret numerical data. Students' facility in these areas are specifically evaluated on lecture exams.

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

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A majority of the laboratory exercises require the students to work in groups (typically groups of four). Different groups or members of each group perform separate components of the lab exercise; the groups or group-members then interact to produce a set of group-compiled results. Each student subsequently uses the group-compiled results as the basis for his/her written lab assignment (in-class, homework or lab report). Teamwork is assessed by direct observation by the lab instructor and the assignment of appropriate participation points. During the interactive lab summaries students have the ability to consider different interpretations of the data and how these might yield different points of view.

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