Request for Courses in the Core Curriculum

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

Person Making Request: James Cohen

Telephone: (956) 326-2411 E-mail: james.cohen@tamiu.edu

Course Number and Title: BIOL 1111 - Principles of Biology II Lab

Please attach in separate documents:

___ Completed Catalog Add/Change Form

_X 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 Outcomes: Upon successful completion of this course, students will be able to:

1. Apply critical thinking to examine primary literature concerning plant biology in order to effectively defend a conclusion.
2. Be able to effectively communicate scientific information both verbally and through written reports .
3. Design and implement an experiment using plants as a model system and analyze a data set to determine a conclusion.
4. Collaborate effectively on a research project and on a presentation of scientific results.
5. Understand and follow standard laboratory safety practices.
6. Describe the structure and form of different plant groups in order to understand the diversity of plant life on Earth.

Core-Curriculum Learning Outcomes:

1. Critical Thinking: includes creative thinking, innovation, inquiry and analysis, evaluation, and synthesis of information. (SLOs: 1, 5, 7)
2. Communication Skills: Students will demonstrate their ability to communicate effectively by using visual communication. (SLOs: 3)
3. Empirical and Quantitative Skills: includes the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. (SLOs: 3)

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

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

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
___ Communication Skills
_ _Written Communication
_X__ Oral Communication
___ Visual Communication
_X_ Empirical & Quantitative Skills
_ _ Teamwork
___ Personal Responsibility
___ Social Responsibility

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:

Students are assigned a "Lab Project" during which students design an experiment to examine the relationship between leaf stomata density and a variety of environmental factors (light, leaf position, species). The students must use critical thinking to decide on a specific environmental variable, construct a testable hypothesis, collect and analyze data and draw a conclusion supported by the collected data. A critical thinking rubric with domains for creative thinking, depth of inquiry, evaluation of importance and synthesis of information can be scored by the instructor from the lab report, or the lab report can be up loaded for evaluation by the Core Curriculum Assessment Committee.

Communication Skills:

At the conclusion of the "Lab Project," students will present their findings in a 10 minute oral presentation. The presentation will include an oral component from each group member and graphs and tables representing the data collected during the experiment. Video of the presentation can be uploaded, or the instructor can score each presenter using an oral communication rubric with domains covering grammar, organization and clarity.

Empirical & Quantitative Skills:

As part of the analysis for the "Lab Project," students will be expected to examine the statistical relationship between subjects in the control and variable conditions of their experiment. This analysis will include calculating the mean, median, standard deviation, standard error for each group and conducting a t-test. The instructor can assess the logical reasoning behind the calculations and the appropriateness of the statistical analysis, or the lab report can be up loaded for evaluation by the Core Curriculum Assessment Committee.

Teamwork: N/A

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 13, 2013.