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?

This is an introductory course on insects and related arthropods for non-entomology majors. Throughout the course, student will be introduced to examples of ways that arthropods are used to describe, explain, and predict natural phenomena which involves the use of the scientific method. The course deals with insects as resources for both food and space, and also as competitors with humans and other animals. Insects are the most abundant and diverse multi-cellular life forms on earth, and their role in nature is essential for human existence. Insects have affected the development of human civilizations and cultures through impacts ranging from health, sanitation, food production and storage, to music, art and architecture. Arthropods are part of the human experience on planet Earth, and this course offers an overview of the historic, present day, and future roles of insects and other arthropods in affecting the culture of all countries and societies.

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):

1. Critical Thinking: Through lectures, demonstrations, eLearning exercises, optional laboratory pinning sessions, optional field trips, and exchanges with the instructor and others, students are presented with an introduction to the use of the scientific method as it relates to insect populations associated with humans in all aspects of their lives including wellness, art, music, literature, and the history and global diversity of societies. Specifically, students are required to participate in at least three formal examinations (300 points) which tests their abilities to not only retain information, but to also synthesize concepts in addressing complex choices. Points will be assigned to each of the three major examinations and the optional, comprehensive final. Students will be introduced to the scientific method and then will demonstrate their ability to recognize, interpret, and evaluate three aspects of assigned scientific papers including the hypothesis, scope of research, and results of the work. They will then demonstrate their comprehension by composing an abstract, or summary, of the research. These written assignments will be graded and points earned based upon factual content, comprehension of concepts, and logical presentation (50 points). The impact of arthropods on human and animal health will be emphasized in discussions about insects’ role in disease agent transmission and direct human-insect interactions. Students will be asked to demonstrate understanding of these concepts on examination questions. In another unit of
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study, students will be given the opportunity to participate in active and passive entomaphagy, during which they will make informed choices and decisions about the foods that they choose to eat based on the federal regulation defining Food Defect Action Levels (DALs) for insects or insect parts. An interactive discussion will then be conducted with the students to help them to compare and contrast the value of having the DALs on labels for fresh and processed foods at the point of sale as well as the merits of organic versus traditional production methodologies involving pesticide use. The results of the discussion and conclusions drawn will be supported and emphasized with examination questions and an assigned topic explained in the “team project” section.

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

II. Communications: Students are required to write a song or poem about an arthropod group using information presented in class and from other sources provided on eLearning (10 points). They then summarize and demonstrate their comprehension of the concepts of taxonomic classification by including their ideas in this assignment. They are then given the opportunity to perform their poem/song during class. Extra credit will be given to those students who work and perform this assignment as a team (10 points), which necessitates that they communicate, coordinate, and then perform before the class. This assignment is graded and points are awarded for the originality of their work, complying with the stipulations in the syllabus, submitting on time, and performance in class. In addition, students will be frequently called upon to actively participate in demonstrations, dramatizations, and discussions during the lecture periods. The concepts covered will be on examinations. Students will interact with their classmates during arthropod collecting trips and pinning sessions overseen by the instructor and teaching assistants, wherein small group discussions are held as they compare and contrast the morphological characteristics of their specimens in determining the proper classification, the method of preservation, and presentation in the semester project. The assessment of these activities and discussions is ultimately determined by the number of points earned by the students on their individual semester projects (100 points).

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

III. Empirical and Qualitative Skills: Students will demonstrate their abilities to distinguish between various taxonomic possibilities through a virtual assignment presented on eLearning as the “Taxonomic Puzzle”. This assignment requires the student to observe, classify, categorize and discern between different possible levels of classification which reinforces the concept that any organism can be classified several ways from the most general (Domain) down to, and including, Suborders of Arthropoda (Entomology 322). Students will have to formulate and present their answers to fit into a crossword puzzle format requiring them to deduce which of 47 different possible answers, based on correct identification, will meet the criteria of the specific area of puzzle (across or down). This assignment is graded and points assigned (25 points). The semester project requires that students collect, identify, preserve, label, and organize 30 specimens using specific taxonomic criteria presented in the syllabus. The students are then required to justify their decision in assigning specific taxa to each specimen that they then submit for grading. This project is graded based on correct identification, selected method of preservation, organized display, and ability to follow the directions in the syllabus. Information to assist the students in completing the above two assignments will be presented in class through the “Orders of the Day”, and will then be reinforced through the use of videos which have been posted on-line at eLearning, as well as optional field trips and pinning sessions. Comprehension and synthesis of correct concepts of taxonomy are evaluated on examinations and through specific assignments including the taxonomic puzzle (25 points) and semester project (100 points).
Teamwork (to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal):

IV. Teamwork: All students enrolled in this class will participate in the team assignment called the “Virtual Collecting Jar”, which is posted on eLearning, and requires and facilitates online/personal interactions. Students will be assigned to five-member teams that share in the task of viewing a set of 50 randomly assigned images of arthropods, and then, as a group, discuss and arrive at a consensus on the correct identification of the specimen. This then leads to the formulation of the correct answer based on the taxonomic level posed in the question. The group will select a Team Leader, who will then submit the group’s answers via eLearning. All team members will share in the points earned, based on both the number of correct answers (50 points), and the individual student’s level of participation in the process as determined via a survey document. Each student, in order to receive credit for participation (10 points), must judge their own effort, and access that of each of the other team members. Final points award are based on number of correct responses, and the measure of participation of each student. There are also five assigned open ended questions (10 points each) presented to each team during the semester. These questions will be presented at different times during the semester to relate to specific concepts presented in lectures. Each team will consider and evaluate each question, compare and contrast various answers, and then submit their answer as a unified group. A single report, not to exceed 200 words will be organized, justified, and submitted by the team leader via eLearning for each of the five questions. These five reports will be graded on originality, completeness, and conclusions reached (10 points each for a total of 50 points).

V. Personal Responsibilities: Each student has the opportunity to do well on examinations, complete and submit assignments on time, participate in a team assignment, enhance their writing skills, and perform their song or poem before the entire class. Both attendance and participation in class are expected and rewarded, but it is ultimately the students who have to make these choices. During office hours, and normal business hours, the instructor will be available to students who might have questions or concerns about the class, or assignments, and they are given every opportunity to avail themselves of this help and encouragement, but ultimately it is expected that each student must show initiative, demonstrate their willingness to read and interpret the syllabus, follow directions, and organize and present their work during the semester. Their grade is determined by how well they do on each assignment, examination, and project.

VI. Social Responsibilities: Because of the large class size for Entom. 322 (200 students), there are numerous opportunities for students to experience multicultural situations as part of the team projects, field trips, laboratory pinning sessions, and presentations. The students have the opportunity to meet and learn about each other as they make their presentations to the class, and participate in group activities. A representative of various student organizations is invited to make presentations to the class during the semester, including the Ambassadors and Mentors (travel abroad programs), and COALS Internship programs. Every student is required to adhere to the Aggie Honor Code, and questions over this topic are included on the major examinations and require introspection and application of the principle of global and personal responsibilities to avoid dishonesty and plagiarism. To emphasize the importance of social responsibilities, every assignment contains a statement of the Aggie Honor Code that each student is required to sign that they understand, and agree to obey. Any violations of the code will be discussed immediately with the student, their explanations considered, and actions outlined if violations are deemed to be intentional.