

Syllabi by Discipline :: Biology

Course Title: Microbiology: Service learning and the Environment Meet at Clear Lake

Instructor: Joel Brevard

School: Brevard Community College

Categories:

Biology, Environmental Studies

Syllabus:

ABSTRACT:

College students enrolled in diverse science courses at Brevard Community College are able to provide service to at-risk local high school students enrolled in the federally-funded DRIVE (Deeds and Recreation Invalidate Violence Everywhere) Program, Brevard Community College, and the citizens of Brevard County. The scientific principles around which service learning will be developed involve analysis of the environmental, zoological, and microbial characteristics of Clear Lake in Cocoa, Florida. Clear Lake was selected for its proximity to the college and the high school as well as its frequent, routine use by the college and the general public in activities that result in people recreationally entering water or eating fish that may be unsafe.

The principle thrust of the SLEMAC program is to use a scientific venue to guide both college level and high school students into a greater appreciation of their role in their community and to heighten awareness of their civic responsibility. Using the higher cognitive skills requisite of science to develop citizenship and a sense of communities is a unique approach to service learning. Participants will gain an appreciation of the need to protect and preserve our environment, locally and globally, and that they must play a direct role in assuring that clean, safe water is available to everyone.

All participants will be assigned to worksite specific teams, where they will develop their abilities in leadership, team-work, problem solving and independence. In employer surveys, these rank today as the most desired skills. Additionally, students will learn specific entry-level skills in the environmental employment fields.

COURSE DESCRIPTION:

Students enrolled in MCBC 2013 can earn classroom credit by participating in the SLEMAC (Service learning and the Environment Meet at Clear Lake) program. Involvement in the program will require registration through the Center for Service Learning (CSL) on the Cocoa Campus in SC 214. Student participants will provide a minimum of twenty service hours. For their service, student participants will receive an additional 10% of their test score total (not including the final exam score) added to their course scores. Students will further be required to write a reflection paper indicating the value of the study to their course content and how their service has affected them as individuals. Since this will be a group project resulting in a published report, a mandatory two hour group reflection meeting to discuss the project must be attended at the end of the semester.

Student participants will undergo training in sample collection, chemical analyses of natural waters, measurement of physical parameters, studies of flora and fauna, and methods of microbial analysis. After training and demonstration of expected proficiencies, participant teams will be paired with teams

of students from the DRIVE program currently being directed by the Center for Service Learning. Continued collection will be performed weekly by the joint BCC-DRIVE teams with BCC students serving as mentors to the at-risk students of the DRIVE program. The data collected by these teams will be organized and analyzed by the associated faculty members with the assistance of the student volunteers. Final analysis and interpretation will be used as a base and component of the mandatory reflection session in May. Students will develop recommendations for the use, preservation, and, if needed, remediation of the waters in Clear Lake.

Two texts will be required for this course. The lecture text is MICROBIOLOGY - Principles and Applications by Jacquelyn Black. The laboratory manual is MICROBIOLOGY APPLICATIONS by Benson.

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