

ASMCUE Microbrew Presentation, June 2011

Ann H. Williams
Assistant Professor of Biology
University of Tampa, Tampa, FL
ahwilliams@ut.edu

Microbes in the Schools

An introduction of microbes to high school students

Mission

A team of science education undergraduates, biology undergraduates, and educators at the University of Tampa will introduce a week long microbial project to a local high school science class. This project is aimed to foster community outreach between UT and Tampa Bay, gain experience for biology undergraduates to communicate scientific concepts at various levels, and engage high school students to become interested in science.

Outreach Project

- Organized, prepared, and supervised by UT students enrolled in BIO495 – Special Topics Course
 - Microbes in the Schools
- Involve analyzing the antibiotic sensitivity/resistance of various organisms (gram negative and gram positive) using a Kirby Bauer method. Also, students will use specialized growth media such as MacConkey's and Mannitol salt agar to isolate and analyze microorganisms.
- Project will be performed in a high school classroom for 1 week in Oct/Nov 2011 for an hour each day
- UT students will prepare, deliver, and analyze assessment and learning materials for the students.

Timeline of Events

Summer 2011 – General outline and guidelines will be generated. Recruitment of UT biology students for the BIO495 (Special Topics) course and the high school teacher/class for the week long project in the classroom will occur. Begin purchasing supplies and materials required.

Fall 2011 – In weekly meetings students in BIO495 and the professor of the course, in collaboration with the science education undergraduate and high school teacher, will prepare lesson plans and assignments for the high school students, design experiments, prepare supplies, and prepare assessment materials. The students will then deliver the experiments and learning materials to the high school class in the week long experiment and assess student assignments.

Spring 2012 – Together with the undergraduates involved, we will prepare a manuscript for *JMBE*, an abstract for presentation at the ASMCUE conference, and attempt to secure grant funding (internal and/or external funding) for future years on this project. Begin recruitment cycle for the following year (Fall 2012).

BIO495 Special Topics Course – Microbes in the Schools

- Enrolled with 4-5 interested and recruited Biology majors (undergraduates)
- Students should have already taken Microbiology (BIO307) or are currently enrolled
- Students receive 1-2 credits and a grade for this course
- Meet with professor (Dr. Ann Williams) once per week or as needed
- Responsibilities include those listed below

Course Goals

-overall goal is to develop, implement, and assess a week long microbial project to be performed in a high school science class.

-Specific goals

- 1) Prepare and determine amounts of materials (plates, media, lab handouts,...) needed for hands on experiment involving the Kirby Bauer method and selective/differential media such as MacConkey's and Mannitol salt agar.
- 2) Prepare lecture material to explain methods to high school students and analyze results with guidance of science education undergraduate
- 3) Develop and implement assessment materials (worksheet, exam questions) for students and teachers
- 4) Go to high school class for 1 hour every day for a week to discuss experiment, perform experiment with students, discuss results of experiment, and deliver assessment of student knowledge of material.
- 5) Develop and implement assessment materials such as surveys to analyze the effect of the project on the students' knowledge base.

Funding

-Funding approved from a UT Alumni Association Grant (Spring 2011) for \$2000 for consumables and supplies needed to run the experiment in the high school classroom for Fall 2011

-Possibilities for external funding and continuation on an annual basis