

BUILD RDC Stream	<i>Stop that bacteria!</i>
Course	BIOL1107/1108
Semester	Spring and Fall 2016
Faculty Leader	Dr. Charles T. Spencer ctspencer@utep.edu BioScience rm 5.148 Ext. 8776
Research Educator	Dr. Trevor T. Duarte ttduarte@utep.edu BioScience rm 5.126 Ext. 6504
Graduate Teaching Assistant	Natzidielly Lerma
Undergraduate Mentors	TBA
Location	Physical Science 303

Learning Objectives:

In *Stop that Bacteria!* I & II, students will learn laboratory theory and practice concerning growth of and immune response to the bacteria *F. tularensis* using an *in vitro* macrophage/NKT cell infection model. In the second semester they will continue this work with additional use state of the art mass spectrometry to perform targeted lipidomics to quantitate changes in glycolipid levels. This course is designed for freshman students in the UTEP BUILDing Scholars program who are interested in biomedical or ecology/evolution tracks, however it is opened to any UTEP student that meets the prerequisite.

After successful completion of these courses, students will have learned:

- (1) principles of the scientific method, by testing hypothesis concerning infectivity of mutant bacteria using cell culture, co-infection of macrophage/NKT cells and sandwich ELISA.
- (2) concepts in cellular biology such as pH, buffers (including their preparation), macromolecules, osmosis, eukaryote cell structure, prokaryote cell structure.
- (3) concepts in organismal biology such as bacterial cfu counting, statistical measures, vertebrate identification (of host organisms), vertebrate immune system and its evolution.
- (4) basic cell structure as revealed by immortalized murine macrophage cells and murine hybridoma NKT cells.
- (5) light microscopy, spectrophotometry, mass spectrometry.

Prerequisites

Students must have completed SCI1301, BUILDing Scholars Research Foundations Course. Students must secure instructors approval before entering.

Grading and Attendance:

Your grade each semester is composed of Pre Lab reading = 10%, Presentations = 10%, 4 lab projects = 60% (15 each), lab follow-ups = 10% and evaluation by your group = 10%. Grading is on a straight % scale A (90-100), B (80-89), C (70-79), D (60-69), F (60 or below). Excused absences (as according to the UTEP attendance policy) will be honored, however documentation must be provided.

Course Materials:

Lab Notebook with duplicate pages, Sharpie, Pens (no pencils), Lab Coat

Blackboard:

Blackboard will be used as the main line of communication from the Faculty Leader and Research Educator. Various literatures, protocols, quizzes, and other materials will be posted on Blackboard. P

Lab Notebooks:

As in a Research Laboratory, notebooks belong to the university. This is the permanent record of your experiments in the lab and will be used for any publications associated with your findings. Therefore, alteration, destruction, removal or falsification WILL NOT BE TOLERATED AND WILL RESULT IN AN AUTOMATIC ZERO. You will be using notebooks with duplicate pages. You are welcome to remove the yellow duplicate copy after each lab for your own information. The physical notebook with the permanent pages will remain with the Research Educator and will be periodically reviewed by the Faculty Leader. Completeness of the lab notebook will be part of your grade.

UTEP Policy on Academic Dishonesty

Any student who commits an act of scholastic dishonesty is subject to discipline and will be reported to the Dean of Student Affairs. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Accessibility

If you have or suspect you have a disability and need accommodations, contact the Center for Accommodation and Support Services (CASS) at (915) 747-5148 or cass@utep.edu. The office is located in Union Building East, Rm. 106; and on the web at <http://sa.utep.edu/cass/>. You are responsible for presenting to Dr. Duarte any CASS accommodation letters or instructions.