

## Life Science Academy @ Owensboro Community & Technical College

### Biomedical Innovation (PLW 145)

Mondays and Wednesdays 6-7:30 AM

Fall & Spring Semester 2018-2019



**LIFE SCIENCE ACADEMY**

COMMUNITY CAMPUS

**Dr. Chad Wilkerson**  
dwilkerson0029@kctcs.edu  
Office hours by appointment

**Project Lead The Way® course in Biomedical Innovation:** In this capstone course, students apply their knowledge and skills to answer questions or solve problems related to the biomedical sciences. Students design innovative solutions for the health challenges of the 21st century as they work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health. They have the opportunity to work on an independent project and may work with a mentor or advisor from a university, hospital, physician's office, or industry. Throughout the course, students are expected to present their work to an adult audience that may include representatives from the local business and healthcare community.

**Students will work in pairs or teams to solve 1-2 real-world problems with roots in the biomedical discipline. Student researchers will be paired with a content advisor (a subject matter expert from the community) and an academic advisor (Dr. Wilkerson) to guide their year-long investigation.**

**Products for each Research Project:**

- **Brain Storming**
- **Literature Review**
- **Proposal**
- **Manuscript for submission to a scientific journal**
- **Presentation at a state or local conference**
- **Scientific poster for presentation at a state or local conference**

**Required Text: Electronic curriculum provided through Canvas LMS**

Project Lead the Way, Inc. (2015) Biomedical Innovation Curriculum Manual (v1.0) Indianapolis, IN: Charitable Venture Foundation.

### Grading Criteria

25% Participation (includes portfolio and lab notebook)

25% Research Project 1

25% Research Project 2

25% Learning Activities

### Grading Scale

A = 90-100%

C = 70-79%

F = Below 60%

B = 80-89%

D = 60-69%

**\*\*\*The syllabus can and may be modified over the course\*\*\***

## **General Policies (Please visit the “Common Policies” tab of our website)**

**Attendance:** Students are expected to attend and be on time for each and every class. The attendance and tardy policies and procedures will be the same as your home high school. In order for you to learn, you must be present. The expectation is that you are in the classroom, willing and ready to learn each day. This class is fun but it is also challenging. If you miss class, you will get behind which ultimately causes you more work. When your home school activities conflict with the LSA we will work with you on an individual basis. Because so much of what we do is team-based, you will be missed by your group when you are not in class!

**Late Work:** Homework, projects, labs, etc. are due at the beginning of class on the assigned day. **I will not accept late work from students unless they have an excused absence.** It is your responsibility to retrieve the work you missed. You may email me to get missed assignments. Labs cannot be made up. If you miss a lab, a make-up assignment will be given even if you have an excused absence.

**Be Prepared:** Bring all required materials and a good attitude to class every day: 2 NON-SPIRAL lab journals, calculator, flash drive, pens, pencils, erasers, highlighters, post-it notes, etc., and 3 boxes of exam gloves

**Student Code of Conduct:** Please remember you are not the only one in class. You are to treat others in a tolerant, considerate, courteous and respectful manner at all times. This includes using appropriate language, speaking in a mature manner, keeping your hands to yourself and participating fully in classroom activities. Many of the lesson activities in this class require group work. Therefore, participation and getting along with others is a necessary component of the course. Cheating, plagiarism and copying of assignments will not be tolerated. Such activities will result in a grade of zero for that particular exam or assignment and may result in failure of the course in accordance with the Code of Student Conduct. OCTC and KCTCS strive to maintain an atmosphere of academic freedom and personal respect that creates an environment in which all can be successful. As part of this commitment, KCTCS has developed a Code of Student Conduct that serves as a guide for the student's responsibilities and rights within our academic community. Expectations of OCTC Standards of Professional Conduct are available at <http://www.octc.kctcs.edu/expectations/spc.htm>.

## **OCTC Policies**

**Disability Accommodations:** Students with disabilities who require accommodations (academic adjustment and/or auxiliary aids or services) for this course must contact the Disability Services Office in the Counseling Center, Campus Center Building, Room 102B. The DSO telephone number is 270.686.4528. Dial 711 for TDD protocol. Please DO NOT request accommodations directly from the instructor without a letter of accommodation from the Disability Services Office.

**The Quality Enhancement Plan (QEP):** OCTC has embarked on a five-year Quality Enhancement Plan (QEP) to improve student learning through the setting of clear expectations for all OCTC students--expectations founded on our general education competencies and focused on 1) the expression of ideas, 2) the ethical and personal responsibility to be exhibited by every member of the OCTC community of learners, and 3) the life-long need for social/civic interaction and learning. For more information visit: <http://legacy.owensboro.kctcs.edu/ir/qep/>

### **Procedures Relating To Discrimination, Harassment, & Sexual Misconduct**

1. If a student thinks that he/she has been discriminated against, the student shall inform the chief student affairs officer or his/her designee with thirty (30) calendar days of the occurrence of the alleged incident. The chief student affairs officer or his/her designee shall conduct a preliminary investigation of the discrimination grievance.
2. The student, chief student affairs officer or his/her designee, and other involved parties shall work informally to negotiate a solution within fourteen (14) calendar days. The informal student discrimination grievance procedure shall be completed within forty-four (44) calendar days of the occurrence of the alleged incident.
3. If the grievance is not resolved to the satisfaction of the student through the informal grievance procedure, the student may file a formal appeal according to the KCTCS Student Code of Conduct.
4. If a student feels he/she has been subject to sexual misconduct, those complaints should be made to the College Title IX Coordinator or other college administrator. Such complaints shall be handled in accordance with the Sexual Misconduct Procedure

## **Possible Topics/Projects**

- 1) Design of an Effective Emergency Room
- 2) Exploring Human Physiology
- 3) Design of a Medical Innovation
- 4) Investigating Environmental Health
- 5) Combating a Public Health Issue
- 6) Molecular Biology in Action
- 7) Forensic Autopsy

### **1) INDEPENDENT PROJECT 1**

- Pre-Proposal Brainstorming 1
- Literature Review 1
- Research Proposal 1
- Poster Draft 1
- Problem 1 Final

### **2) INDEPENDENT PROJECT 2**

- Pre-Proposal Brainstorming 2
- Literature Review 2
- Research Proposal 2
- Poster Draft 2
- Problem 2 Final

### **3) INDEPENDENT PROJECTS submitted for Posters at the Capitol Participation**

### **4) Scavenger Hunt (TBD)**

### **5) PLTW Environmental Health**

- Water Quality Write-Up
- Water Pollutant Write-Up
- Environmental Profile of Local Area

### **6) PLTW Forensic Autopsy**

- Pig Autopsy