

**BioSc159: Intro to Biotechnology Lab** Contra Costa College, Fall 2014, Katherine Krolkowski

**Class Meetings:** Wednesday 4:40-7:20pm (Room B-18 and B-22).

**Contact** Katie Krolkowski Office: B-4, Phone: (510) 215-3990 , Email: krolkowskiccc@gmail.com

**Web:** Extra course resources will be made available at the course website:

**Official Course Outline:** This is posted at the above web address

**Office Hours:** M (**At The HUB**, PS107 11AM-12PM *or* 1PM-2:30PM), Tu (My Office, B4 10:00 AM-11:00AM), W(Biotech lab, B-22, B4 3:30-4:30PM), Th (My Office, B4 12:30-2PM)

**Required Materials:** *Lab workbook:* Introduction to Biotechnology Lab & Foundations in Biotechnology Lab and Lecture Workbook 3<sup>rd</sup> ed. Krolkowski, K. *Lab equipment:* 3-ring binder, indelible black or dark-blue pen, lab notebook (provided), lab coat (provided). *Email account* you must be able to check this every day during the week.

**Supplementary Materials:** *Basic Laboratory Methods for Biotechnology 2<sup>nd</sup> ed:* Seidman, L.A. and Moore, C.J. Prentice Hall, 2009. *Introduction to Biotechnology 2<sup>nd</sup> ed,* Thieman and Palladino. *Biotechnology: Science for the New Millenium 1<sup>st</sup> ed,* Daugherty, E. *Basic Laboratory Calculations for Biotechnology* Seidman, L.A. Pearson/Benjamin Cummings 2008.

**Pre/co requisite:** BioSc157 or BioSc172

**Evaluations:** Notebook are due in sets called 'Modules' as shown in the course schedule and module checklists. Pre-lab quizzes must be taken on the days shown in the class schedule and cannot be made up. Late work is not counted for full credit

Lab notebook entries (60 points each) count best 9 of 12 = 540 points

Pre-labs (20 points each) 8 total = 160 points

SOP quizzes (20 points each) 5 total = 100 points

Lab cleanup/teamwork rating (15 points each meeting) best 13 of 17 = 200 points

Grading Scale (out of 1000 total points)

**A:** 90-100%, **B:** 79-89%, **C:** 60-78%, **D:** 50-59%, **F:** below 50%

**Attendance:** For success in this course, students are required to read relevant materials in the text and lab handouts and work through preparatory exercises as assigned BEFORE the lecture meeting.

Attendance is **mandatory**. Labs cannot be made up.

**General Notes:** This course is designed to provide students with training in the skills and applications commonly used in Biotechnology and Molecular Biology laboratories. It will provide technical practice with analytical instruments, the formulation and use of reagents, and the culture and study of model organisms. Students will learn and apply the Scientific Method, perform data analysis, keep a laboratory notebook according to cGMP, follow Standard Operating Procedures and practice good communication and teamwork skills as they carry out laboratory experiments that reveal foundational concepts of biology, biotechnology, and molecular biology.

Lab skills include: Practice and application of the Scientific method, Sterile and Aseptic Technique. Use of the autoclave and ultrafiltration technique. Use of the biological safety cabinet (tissue culture hood). Preparation and use of different buffer systems and reagents. Practice with electronic balances, single and multichannel micropipets, calibrations. Preparation of growth and selective media used in microbiological and eukaryotic cell culture, Microscopy -preparation and analysis of samples using of dissecting, compound, and fluorescence microscopes. Good laboratory practices: Following SOP's, documentation, keeping a laboratory notebook, data analysis. Preparation and documentation (batch record) of a growth timecourse, UV spectrophotometry, gravimetric column chromatography (size exclusion and ion-exchange), SDS-PAGE, gel documentation. Western blotting, DNA extraction, Polymerase chain reaction (PCR), agarose gel electrophoresis, agarose gel documentation, Workplace skills: working as part of a team, problem-solving, record keeping according to cGMP, critically examining data.

**General Notes (continued):** Lab write-ups and quizzes are to be your own work. Working through the material in groups is encouraged, but it is essential that the material turned in is entirely your own.

Spelling, grammar, writing style and attention to the format of the exercise are important. This course aims to give students both knowledge and practical experience in valuable biotechnology workplace skills. These include good communication, effective teamwork, understanding concepts important for working in a regulated environment, laboratory calculation, and technical practice with precision measuring and analytical instruments, and reagents. I highly encourage you to learn actively by participating in discussions and labwork, and by taking advantage of office hours and email

**DSPS Statement :** Students who would like to receive accommodations for their learning, physical, or psychological disabilities should contact the Disabled Students Programs & Services (DSPS) office (H-19) and schedule an appointment. (510) 215-3969."