

Course Information

BioSc157: Foundations in Biotechnology Contra Costa College, Fall 2014, Katherine Krolkowski

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

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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 3rd 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 2nd ed:* Seidman, L.A. and Moore, C.J. Prentice Hall, 2009. *Introduction to Biotechnology 2nd ed,* Thieman and Palladino. *Biotechnology: Science for the New Millenium 1st ed,* Daugherty, E. *Basic Laboratory Calculations for Biotechnology* Seidman, L.A. Pearson/Benjamin Cummings 2008.

Prerequisite: BioSc106 or BioSc172

Evaluations: Homework and notebook entries are due in sets called 'Modules' as shown in the course schedule and module checklists. Quizzes must be taken on the days shown in the class schedule and cannot be made up. Late work will not be counted for full credit

Homework (12 points each) - count best 30 of 40 = 360 points

Lab notebook entries (40 points each) - count best 9 of 12 = 360 points

Quizzes (8 at 40 points each) - with a cushion of extra points possible = 280 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**. Classes cannot be made up.

General Notes: This course is designed to provide students wanting to enter the field of biotechnology with a solid foundation in the chemical, biochemical, microbiological, mathematical, bioinformatic and regulatory concepts used in biotechnology labs. Students practice laboratory calculations, design and analyze experiments, and become familiar with the documentation and practices important for working in a regulated environment (laboratory notebooks, QA/QC, SOP's, cGMP). Good communication and work-readiness skills are emphasized.

Workplace skills include: Proficiency with laboratory calculations (dilutions, buffer recipes, unit conversions, etc.), Understanding of principles of commonly used techniques of biotechnology (for example; molecular biology, biochemistry, microbiology, bioinformatics, etc.) Understanding of good practice in the biotechnology industry (Standard Operating Procedures, QA/QC, laboratory notebooks, cGMP conventions). Work-readiness skills such as effective communication, teamwork, and critical thinking, global knowledge, self-direction, writing, adaptability, self-knowledge, quantitative reasoning, social responsibility, ethical judgment, and intellectual skills). Use of statistical analysis and graphing to present experimental results, familiarity with a number of bioinformatics tools (NCBI, BLAST, CLUSTAW, Model Organism resources such as TAIR, WormBase, etc.), and Analysis of ; protein data generated from column chromatography, SDS-PAGE, bradford quantitation and ELISA assays, DNA data generated from PCR, and agarose gel assays, cellular and organismal data generated from microscopy, cell culture, and bioreactor experiments.

General Notes (continued): Lab write-ups and homework assignments 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."