BioScience 230: Introduction to Biotechnology: Lab Syllabus

M/W: 1:00-5:00 (Sect # 23969) Office: X-11, or L-201, or L-216
email: wolf_j@mail.coc.cc.ca.us FYI: 231 is in L-201 MW 6-10
Prof. Jim Wolf, Ext. 3092 **Office hrs**: M/W:12:00-1:00, 5:00-6:00 or by appt.

Lab and lecture connectivity: In a course of this nature, the lab and lecture are only partially connected; and distinctly different teaching styles are employed in each. In a traditional course, labs will overlap with lecture very clearly (e.g. a lecture on diffusion and osmosis may be followed by a lab dealing with these concepts.) In a biotechnology course, due to the complexity and additive nature of the subject matter, a subject may be introduced for the first time in lab, may be mentioned extensively in lecture and only touched on in lab, vice-versa or anything goes! You will be responsible for understanding lecture topics as they apply to lab concepts, use lab data to back up a theory discussed in lecture, etc. The synthesis model is a more realistic approach to how science is conducted and more closely resembles the workplace setting. Let me close by answering a question and giving you a pep talk. Yes, anything covered in the class could appear on any test at any time. If you look at the course as one big endeavor, you now have half as many classes to study for!

TENTATIVE lab schedule: May be changed according to progress of class. Lecture may also occur during lab time in order to permit optimum use of time.

Week/date		
1-21	Monday Holiday: Martin Luther King, Jr.	Biotech Lab Equipment and Safety Quiz
1-28	Metric System, Dimensional Analysis and Volumetric Determination and Error	Solution Preparation: Chapter 21 in Siedman et al. Molarity and Dilutions/Concentration and Serial Dilution practice lab..
2-4	Data Gathering and Graphing Lab	Lab Notebook and Formal Lab Write Up Explanation
2-11: *(2-15, deadline to drop w/out "W"##)*	President's Day: No Class	High Performance Liquid Chromatography (HPLC)
2-18	Gel Filtration, graphing analysis, and protocol trouble shooting.	Sterile Techniques, Tissue Culture and Cell Counting : (cell transfer: **CT**) Sterile technique practice, hemocytometer, viable cell ID
2-25 *(3-1, deadline to change to CR/NC.)*	**CT**: Sterile technique practice, hemocytometer, Excel graphing **Lecture Exam 1** **Formal Lab Assignment Number # 1 Introduction**	Protein Standard Curve/**CT** (Colorimetric Assay)

3-4	Protein Extraction and Concentration Determination/**CT**	**CT**/Gel Electrophoresis and DNA Fingerprinting Lab/DNA digest set-ups and agarose prep, read ahead on graphing portion.
3-11	**CT: Count only (no transfer)** Gel Electrophoresis and DNA Fingerprinting Lab Factors affecting gel quality and molecular mass determination.	Transformation: Genetic Engineering (with pAMP) **Formal Class presentations !!**.
3-18 *(10-15, deadline to drop class ##)*	Transformation: Genetic Engineering (with pAMP) Discuss results of transformation. (repeat if necessary) Green Fluorescent Protein (GFP) Plasmid and Protein Purfication/ Colony propagation and purity validation	GFP: Plasmid Mini Prep and Validation Gel. **Formal Class presentations!! Note GFP is a big lab, so keep up on your lab notebooks as time permits.**
3-25 *(3-26/ Last day to drop with W on transcript)*	GFP: P-glo protein purification (affinity chromatography)	Enzyme linked immunoabsorbent assay (ELISA), Multi-channel micropipettor practice and ELISA theory. **Lecture Exam 2**
4-1	Spring Break Wahoo!!!!	.!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
4-8	ELISA lab: Probing serum for rabbit antigens. Spectrophotometric analysis for maximum resolution	PCR: ALU Insert Lab: Theory of PCR: 1. URL review 2.Tissue sample preparation and PCR reaction set up
4-15	PCR ALU Insert: Run gel and discuss lab results	A Forensic Examination Using Protein Diversity: 1. Sample preparation 2. Vertical Gel Rig Practice
4-22	A Forensic Examination Using Protein Diversity Polyacrylamide Gel and Agar Gel Electrophoresis/Staining	Forensic/Protein Gel Interpretation **Lecture Exam 3**
4-29	Western Blots FLEX LAB: *May be omitted, pending class progress*	Western Blots FLEX LAB: *May be omitted, pending class progress*
5-6	**Formal Lab # 2 presentations** **BRING VIDEO TAPE!!**	**Formal Lab # 2 presentations** **Lab Check Out**
5-13	**Resume and interview preparation workshop**	**LAB PRACTICUM….**
5-20	**Final Exam: *FRIDAY* 5-25:**	**from 11:00-1:00**

**** If I am not in my office, I can be found in lab (L-201) or in the conference room (L-216.)**
$$: With respect to email, please limit your communications to quick questions. Do not ambush me with twenty questions the night before and exam!.
NOTE: DO NOT ASSUME I HAVE DROPPED YOU!
!! Information on these presentations will be provided.