Course Syllabus

Biochemistry Lab/CHEM 4121

Fall, 2012

Instructor: Lori Isom **Office Hours:** M,F 10:50 – 12:00;
Office: 201D, Laney T 10:40 – 12:00; R 8:00 – 9:00
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Class Time: W 1:00 - 5:00 Room 302 Laney Hall

Course Description and Objectives:

This course is designed to be an overview of important biochemical techniques and concepts. The series of laboratory experiments are designed to integrate relevant laboratory techniques with current issues in the field of biochemistry such as cloning and forensic techniques. A combination of lecture, experimental/computational methods and class discussion will be utilized to this end. The experiments progress from simple molecular biological techniques involving DNA manipulation to protein isolation and characterization to enzyme kinetics. The course will also help to develop important data presentation and lecture skills relevant to the graduating scientist instead of technical lab reports emphasized in pre-requisites to this course.

Prerequisites:

Each student is required to have an **e-mail address** and **access to the internet**. I may send announcements and assignments via email. Email may be used quite extensively to transmit information concerning assignments to the students.

The prerequisite course for this class is successful completion of Chem 3411 (and thus Chemistry 1450, 1451, 2410) and Chem 4320 as a pre- or corequisite.

Class Attendance

Class attendance is strongly recommended. Those students who attend class regularly are the most likely to succeed in this course. Any student who is absent from class for 2 class meetings may be dropped from the course with a WF.

Make-up Policy

Make-up labs will be allowed **only** under rare circumstances. If you must miss a lab for an unavoidable, significant and validated reason, contact me by email or phone (leave a message) **BEFORE** the time of the scheduled lab.

Course Assignments (each category could include some or all assignments described below)

A) Laboratory Preparation

Students will learn lab organization and preparation skills, such as buffer / reagent preparation and equipment checking, by being responsible for doing the prep work for at

least one lab during the semester. This assignment will require the students to come to lab early enough to insure that all prep work is done prior to the schedule lab time.

B) Laboratory Write-ups:

Students will conduct experiments in groups of two. Each student will then turn in a lab write-up the lab period following the completion of the experiment. Each student will be required to turn in a certain number of lab write-ups.

Because the students have had thorough exposure to writing formal lab reports in previous classes, the write-ups required in this course will not be formal, technical lab reports. Rather, the content of the write-ups will be somewhat flexible. A two page limit is imposed (except for one of the experiments that runs over multiple lab periods) and within this limit, students must decide what information is crucial to communicate the theory, methods and results of the experiment. Write-ups will be graded not only according to result accuracy but also to the efficiency of material included to completely describe each aspect of the experiment.

C) Literature Presentations

During the semester, we will watch several movies or TV shows related in some way to biochemistry. Students will be required to either lead a discussion or find a related paper from a primary literature source and present a synopsis of the paper to the class.

D) Topic Instruction

At least once during the semester, each group will be assigned a topic relevant to a recent experiment and the group will **teach** the class about their assigned topic. Each group will be assessed for their ability to communicate the information in an interesting and accurate way by both the instructor and other students in the class. *This will not be a presentation but rather a lecture explaining the topic or method assigned.*

E) Other Projects

During the semester, experiments **may** be supplemented with other projects, such as three-dimensional structure analyses using CHIME , information scavenger hunts, or scientifically relevant movie analysis.

Course Evaluations

Student evaluations of a course and its professor are a crucial element in helping faculty achieve excellence in the classroom and the institution in demonstrating that students are gaining knowledge. Students may evaluate courses they are taking starting on the Monday of the twelfth week of instruction [*November 12th*] through the end of finals week by logging in to myUCA and clicking on the Evals button on the top right.

Academic Dishonesty

The penalties for cheating (ie. representing someone else's work as your own) are SEVERE!! Penalties include, but are not limited to, assigning an "F" for the work and/or the course to expulsion from the University.

The University of Central Arkansas affirms its commitment to academic integrity and

expects all members of the university community to accept shared responsibility for maintaining academic integrity. Students in this course are subject to the provisions of the University's Academic Integrity Policy, approved by the Board of Trustees as Board Policy No. 709 on February 10, 2010, and published in the Student Handbook. Penalties for academic misconduct in this course may include a failing grade on an assignment, a failing grade in the course, or any other course-related sanction the instructor determines to be appropriate. Continued enrollment in this course affirms a student's acceptance of this university policy.

Grading

The following is a **tentative** description of the assignments included in this class. Specific numbers may be changed if deemed necessary.

The following grading scale and assessments may be altered at any time by the instructor as seen fit and appropriate for a given class. However, a student will always have the option to apply the following scale and take the maximum number of exams (3 plus final) below if they deem it would be beneficial for their grade. The scale and number of exams reflects a maximum and will not be increased. For instance, a student whose average at the end of the semester is 90% is guaranteed an A. This threshold will not be raised, it may however be lowered at the instructor's discretion.

Optional assignments are included at the discretion of the instructor and therefore a range of potential points is listed. If assigned, the points will be included in grade calculation and are not optional.

If a student decides to drop a class, this decision is solely the responsibility of the student and should be made understanding the grade calculation methods explained and the instructor's right to adjust these when grades are assigned.

Grading

The following is a tentative description of the assignments included in this class. Specific numbers may be changed if deemed necessary.

Lab Write-ups	50 pts each	**~100 points**
Topic Instruction		**50 points**
Other Projects and misc. points		**0 – 200 points**
Total		**~ 400 points**

Tentative Scale (subject to change):

A = 94% +
B = 85 – 93%
C = 75 – 84%
D = 65 – 74%
F = < 64%

Important Dates

Aug 29, last day to register or add a class
Oct 17, mid-term grades due to registrar
Nov 2, last day to drop with "W";
Nov 30, last day to drop with "WP" if passing; otherwise a grade of "WF" will be assigned.

Drop policy

The last day to drop with a "W" is Nov 2nd. If a student drops on or before this date, a "W" is assigned regardless of the student's grade in the course. Students may officially drop the course until Nov 30th, ***however, the grade assigned after Nov 2nd will depend on the student's grade status in the course at the time of the withdraw.*** For example, if the student withdraws from the course on Nov 3rd and at that time has earned a "C" or better in the course up to that point, a grade of "WP" will be assigned. If, however, the student's grade is below a "C" at the time of withdraw (after Nov 2nd but on or before Nov 30th) then a grade of "WF" will be assigned (at the discretion of the instructor). ***This designation is punitive and will negatively affect your grade point average!***

Students not attending class for whatever reason for more than four class periods may be dropped from the course by the instructor, at the instructor's discretion.

Disability Disclosure

The University of Central Arkansas adheres to the requirements of the Americans with Disabilities Act. If you need an accommodation under this Act due to a disability, contact the UCA Office of Disability Services at 450-3135.

Student Handbook Policies

You should familiarize yourself with the policies listed in the 2011-2012 UCA student handbook, especially those related to academics (p. 37-43) and the sexual harassment policy (p. 112-115).

Tentative Class Schedule

all dates and content are subject to change!

Week	Lab	Presentation
Aug 23	Introduction / Scheduling	
Aug 27	DNA Isolation	Genetic Screening tech/apps
Sept 3	**No Lab (ACS Meeting in San Francisco)**	
Sept 1	pGlo Transformation	Gene therapy or GFP analysis
Sept	**Movie:**	
Sept 2	pGlo Expression	Proteomics
Oct 1	pGlo Chromatography	
Oct 8	TBA	
Oct 15	**Movie**:	
Oct 22	Fall Break No lab	
Oct 29	**Movie:**	
Nov 5	**Movie:**	
Nov 12	Eliza	Immune system apps
Nov 19	No Lab ~~ Thanksgiving Break	
Nov 26	Protein/DNA Construction	
Dec 3	3-D Protein Structure Lab	