Colorado State University Department of Biochemistry & Molecular Biology
BC404 Comprehensive Biochemistry Laboratory
Spring Semester 2018

Instructor:	Brian Kalet, Ph.D.
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Office Hours:	Tuesdays & Thursdays 3:50 – 4:50 pm. If these times don't work for you, call or email to set up an appointment.

Teaching Assistant:	Andrew Lamb (Section 1, 1 pm)
Office:	Yates 307/308/310/312
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Office Hours:	Fridays 9 – 10 am

Teaching Assistant:	Dylan Parker (Section 2, 9 am)
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Office Hours:	Mondays 9 – 10 am

Schedule: Yates 307 & 308, Tuesday & Thursday 1:00-3:50PM (Section 1) & 9-11:50AM (Section 2)

Textbook: Laboratory Notebook (in the bookstore under BC404; $13.50), means of transferring data

Course objectives:

Objective #1: Students will be exposed to a laboratory that closely mimics a research laboratory setting and mentality.

Objective #2: Students will be able to plan, execute and problem solve common molecular biology and protein chemistry techniques including: PCR, agarose and polyacrylamide electrophoresis, bacterial transformation, restriction digestion, protein expression, protein purification, qRT-PCR, enzymatic characterization and site-directed mutagenesis.

Objective #3: Students will understand the theory and experimental design for the techniques listed above.

Objective #4: Students will demonstrate proficiency in working with a partner to plan and direct a research project.

Canvas: Canvas address http://info.canvas.colostate.edu/login.aspx. I will post all the protocols, lectures and grades for this course on Canvas.

Class Structure: What can you expect in the next 16 weeks?

1. 1st eight weeks:
    a. This portion of the class is designed to:
        i. Place our gene of interest into a high yield expression vector.
        ii. Help you practice the skills that will be absolutely necessary for you to succeed in the second portion of the class.
2. The last eight weeks.
    a. In this portion of the lab you will design a point mutant that will destroy, or enhance (if you're really good) some aspect of the protein's function. We will then assess your success using kinetics and possibly other biochemical techniques.
3. Lectures
    a. A portion of the objectives is to teach you the theory of the biochemical techniques you are performing. This will help you problem solve and ensure the success of your experiments. Some of the lectures will take an entire day, others will be presented during some down time. I will set the direction that we are going on these days and describe the theory behind the experiments we will be performing in the up and coming labs. These lectures will help you complete the problem-sets and the exam.

Assessment: Your grade will be derived as indicated below:

1. Exam 100 points
2. Problem Sets 180 points
3. Project 100 points
4. Notebooks 100 points
    a. Two unannounced notebook checks (25 points each) will be performed during the semester, so it is mandatory to bring your notebooks to class every day and keep them updated in order to receive full credit. A final notebook check worth 50 points will be performed at the end of the semester.
        i. **Purpose**: 5 points for written purposes of all the labs from the last check up to the current lab (that day).
        ii. **Methods**: 5 points for written methods of all the labs from the last check up to the current lab (that day).
        iii. **Results**: 5 points for written results of all the labs from the last check up to the last lab fully executed.
        iv. **Conclusions**: 5 points for written conclusions of all the labs from the last check up to the last lab fully executed.
        v. **Legibility & Organization**: 5 points
        vi. There will not be any partial credit for these points. Either you get the 5 points or you don't. For example if you have all the Purposes for the labs written except one then you lose 5 points.
5. Lab Participation 20 points
    a. Each unexcused absence will result in automatic deduction of 10 points.
    b. Poor effort resulting in "lousy" data or slow progress will result in points being lost.

c. Poor organization resulting in loss of samples will result in points being lost.

To be Successful: Here is a short list of ways to be successful:

1. Come prepared knowing exactly what you are going to do and have your notebook prepared to record data.
    a. **Listen** at the beginning of class for changes and additional instructions.
2. Be careful in the way you proceed; do not rush through experiments.
3. Carefully label your reagents and your products. Make sure you know where you have stored them.
    a. Never throw away something unless you are sure you don't need it.
4. Talk to your fellow classmates about things you are confused about.
5. If you are still confused come and talk to me.

Class Schedule: I have given you a tentative class schedule detailing each day and the experiment we will be performing on that particular day.

Grades: Letters grades will be assigned based on the percentage of 500 total points possible:

Grade	Percentage
A+	96.67 – 100%
A	93.33 – <96.67%
A-	90.00 – <93.33%
B+	86.67 – <90.00%
B	83.33 – <86.67%
B-	80.0 – <83.33%
C+	76.67 – <80.00 %
C	70.00 – <76.67 %
D	60.00 – <70.00 %
F	below 60.00 %

Attendance: Attendance to every class is mandatory. There are obvious exceptions to this rule including a death in the family, extreme illness or a university-excused absence. If you need to miss a class, communicate with me and we can talk about whether it is a valid excuse. In the case of an emergency or a tragedy, deal with it first and then come see me.

Lab Safety: Some general policies regarding lab safety:

1) No open-toed shoes (shorts are fine).
2) No "horse-play" in the lab.
3) No eating or drinking in the lab.
4) Place backpacks on racks.

Academic Integrity: This course will adhere to the Academic Integrity Policy of the Colorado State University General Catalog.