



---

# BC 404-L02 Syllabus Spring 2020

Instructor: Brian Kalet, Ph.D.  
Phone: 970-491-3353  
E-mail: [kalet@colostate.edu](mailto:kalet@colostate.edu)

Teaching Assistant: Amanda Kuerzi for students with last names starting with A – H  
Phone: 201-661-1203  
E-mail: [amanda.kuerzi@colostate.edu](mailto:amanda.kuerzi@colostate.edu)

Teaching Assistant: Derek Anderson for students with last names starting with I – Z  
Phone: 865-603-2983  
E-mail: [derek.anderson@colostate.edu](mailto:derek.anderson@colostate.edu)

Schedule: Tuesday & Thursday 1:00 – 3:50 PM

Course objectives: **Objective #1:** Students will be exposed to hypothesis-driven research. This will require developing a well-constructed hypothesis and virtually testing the hypothesis using the techniques listed below.

**Objective #2:** Students will be able to plan and problem solve by understanding both the experimental design and theory of common molecular biology and protein chemistry techniques including: PCR, agarose and polyacrylamide electrophoresis, bacterial transformation, protein expression, protein purification, enzymatic characterization and site-directed mutagenesis.

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 for the duration of the course?

1. Virtual Laboratory

- a. You will design a mutant that will destroy or enhance (if you're really good) some aspect of the protein's function. You will then virtually assess your success using kinetics and possibly other biochemical techniques.

2. Lectures

- a. A portion of the objectives is to teach you the theory of the biochemical techniques you will be virtually performing. This will help you problem solve and ensure the success of your virtual experiments. These lectures will also help you complete the problem sets.

Assessment:

Your grade will be derived as indicated below:

1. **Primer Design 50 points** – Email your primer design summary to Dr. Kalet.
2. **Problem Set #1 50 points** – Download the Word document and type the answers into the document. Email the completed assignment to Dr. Kalet.
3. **Problem Set #2 50 points** – Download the Word document and type the answers into the document. Email the completed assignment to Dr. Kalet.
4. **Virtual Notebook 90 points**
  - a. You will need to email your notebook entry to your TA by the end of the day for each whole number lab day except for Day 10. Day 4.5 should be combined with Day 5 and Day 7.5 should be combined with Day 8. You can find your TA assignment on page one of this document. There will be a total of 12 notebook entries that need to be emailed to your TA. Each notebook entry will be worth 7.5 points each.
    - i. **Purpose:** Purpose of the lab (1.5 points)
    - ii. **Methods:** Methods of the lab (1.5 points)
    - iii. **Results:** Expected results of the lab (1.5 points)
    - iv. **Conclusions:** Conclusions of the lab (1.5 points)
    - v. **Legibility & Organization:** your notebook entries should be comprehensible by anyone studying biochemistry or a related discipline (1.5 points)

To be Successful:

Here is a short list of ways to be successful:

1. Read this document carefully and in its entirety.
2. Look over the schedule and the due dates for assignments. You are responsible for submitting the assignments on time. You can always submit your assignments early!
3. Feel free to contact Dr. Kalet or your TA if you have questions.

Grades:

Letter grades will be assigned based on the percentage of 240 total points possible:

<u>Grade</u>	<u>Percentage</u>
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 %

Academic Integrity:

This course will adhere to the Academic Integrity Policy of the Colorado State University [General Catalog](#).