BC401: COMPREHENSIVE BIOCHEMISTRY I
Structural Biochemistry

INSTRUCTIONAL FORMAT: Hybrid online/face-to-face

Most of the class will be online out of necessity. There are 97 students in the class this year and our classroom only holds 34 students under social distancing constraints. Therefore, *for our face-to-face component I will see 1/3 of the class on Mondays, the second 1/3 on Wednesdays, and the final 1/3 on Fridays*. In these sessions I will focus on learning strategies for the current week's material and we will have a problem-solving exercise based on the previous week's material. This is the only chance we get to meet in person, and I will do everything possible to make this hour a worthwhile experience. If you are unable to attend these sessions, please let me know as soon as possible.

The core of BC401 this year will be online lecture videos from the fall 2019 class. These recordings capture my voice and PowerPoint slides from each of last year's lectures. *By watching and studying these videos you will get a legitimate face-to-face lecture experience.* For most weeks, three lecture videos will be assigned for viewing, corresponding to the M, W, F lectures from last year.

Face-to-face component: 3:00-3:50 PM; CHEM A101

Group 1 – Mondays (Last name A-Har)
Group 2 – Wednesdays (Last name Haz-Oc)
Group 3 – Fridays (Last name Og-Y)

COVID-19 AND COMING TO CLASS

Important information for Students: All students should fill out a student-specific symptom checker each day before coming to class (https://covidrecovery.colostate.edu/daily-symptom-checker/). In addition, please utilize the symptom checker to report symptoms, if you have a positive test, or exposed to a known COVID contact. If you know or believe you have been exposed or are symptomatic, it is important for the health of yourself and others that you report it through this checker. You will not be in trouble or penalized in any way for reporting. If you report symptoms or a positive test, you will receive immediate instructions on what to do and CSU's Public Health Office will be notified. Once notified, that office will contact you and most likely conduct contact tracing, initiate any necessary public health requirements and/or recommendations and notify you if you need to take any steps. For the latest information about the University's response, please visit the CSU COVID-19 site (https://covidrecovery.colostate.edu/).

INSTRUCTOR INFORMATION

Instructor: Dr. Jeffrey Hansen
Email: jeffrey.c.hansen@colostate.edu

Graduate TA: Drew Tonsager
Email: Andrew.Tonsager@colostate.edu

Undergraduate TA: Jeremy Dortch
Email: dortchj@rams.colostate.edu

COMMUNICATION POLICY

Please communicate with us via email. Responses to emails will be provided as soon as possible but may take up to a day.

OFFICE HOURS

There will be no reoccurring office hours. If you want to have a one-on-one conversation with me or the TAs, please email us. We will get back to you to set up a Teams call.

COURSE DESCRIPTION & OBJECTIVES

BC401 covers the structure of nucleic acids and proteins at an advanced level. Unit 1 goes through the biochemical alphabet: thermodynamics, water, the hydrophobic effect, and non-covalent interactions. Unit 2 addresses key structural aspects of DNA and RNA. Unit 3 covers the fundamentals of protein architecture: primary, secondary, and tertiary structure. Unit 4 is dedicated to protein structure/function relationships and uses specific proteins as examples of the concepts illustrated. The course ends with Unit 5, which describes the structure and function of macromolecular assemblages such as the ribosome and the nucleosome.

Objectives:

Upon the completion of BC 401, a successful student will be able to describe and discuss:

1. The non-covalent interactions found in nucleic acids and proteins.
2. The molecular architecture and functions of nucleic acids.
3. The molecular architecture and functions of proteins.
4. The molecular architecture of macromolecular assemblages.

COURSE SCHEDULE

The Course Schedule is a separate 4-page document that is posted under the Course Information module in Canvas. The Course Schedule lays out the entire semester for you. Know it well.

TEXTBOOK/COURSE MATERIALS

- A textbook is not used.

- Lecture Videos are posted in Canvas under ECHO360. Each video is an Echo360 personal capture recording of one of my lectures from the fall 2019 class. You will see my slides and hear my voice but will not see me.

- PDFs of the PowerPoint slides covered in each video are posted under each weekly Canvas MODULE and *serve as the source of material for the quizzes and exams*.

- The content of most of the videos/lecture PDFs is derived from one or more Jsmol tutorials, which can be found here: https://sites.bmb.colostate.edu/bc401/

- The class has an unparalleled learning tool in the form of Jsmol Tutorials. These tutorials combine the internet-accessibility, 3-D graphics, and user manipulability of the program, Jsmol, with topics and text that explain what you are looking at. *The Jsmol tutorials offer a visual, interactive guided tour through structural biochemistry* that can be accessed from your computer, tablet, or phone*.* Almost every lecture has an accompanying Jsmol tutorial. You are expected to view these tutorials frequently to supplement to the lecture materials.

PARTICIPATION/BEHAVIORAL EXPECTATIONS

Please review the core rules of netiquette for some guidelines and expectations on how to behave in an online learning environment.

COURSE POLICIES

In order to be *considered* for make-up quizzes/exams, you must notify me by email that you will be missing the assignment *before* the assignment is due. Excuses received after the assignment due date will not be considered.

GRADING

90-100% = A
80-89.9% = B
70-79.9% = C
60-69.9% = D
0-59.9% = F

A decision whether to curve the class will be made at the end of the semester.

ASSIGNMENT*	GRADE POINTS	GRADE PERCENTAGE
Quizzes	240	43%
Exams	160	29%
Final Paper	100	18%
In class problem solving exercises**	60	10%
Total:	560	100%

*Keep a copy of all work created for the course, including work submitted through Canvas course learning management system.

**The exact number of points may vary.

ACADEMIC INTEGRITY & CSU HONOR PLEDGE

This course will adhere to the CSU Academic Integrity Policies and Guiding Principles as found in the General Catalog and the Student Conduct.

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course. *While you will not be required to affirm the honor pledge*, you will be asked to affirm the following statement at the start of your exams:

> *"I have not given, received, or used any unauthorized assistance."*

Further information about Academic Integrity is available at CSU's Academic Integrity.

ACCOMMODATION OF NEEDS

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner prior to implementation. A verifying memo from Student Disability Center may be required before any accommodation is provided.

CANVAS INFORMATION & TECHNICAL SUPPORT

Canvas is the where course content, grades, and communication will reside for this course.

- Login: canvas.colostate.edu
- Support: info.canvas.colostate.edu
- For Canvas, Passwords, or any other computer-related technical support, contact the Central IT Technical Support Help Desk.
    - (970) 491-7276
    - helpdesk.colostate.edu
    - help@colostate.edu

The Technical Requirements page identifies the browsers, operating systems, and plugins that work best with Canvas. If you are new to Canvas quickly review the Canvas Student Orientation materials.