

Course Syllabus

CHEN 2810, Spring 2022

Meeting Time: T/Th, 4:00-5:15 pm

Meeting Place: BIOT A108 (when in-person learning resumes)

Instructor: Charlie Nuttelman (Senior Instructor)

Email address: Charles.Nuttelman@Colorado.EDU

Office: BIOT D1B14

NOTE: The first two weeks of class are completely online (remote). Use the following ZOOM link (password = "biology"): <https://cuboulder.zoom.us/j/91236105934>. Lectures on ZOOM will be recorded; you need to be logged on and watching during normal class time, however, as Top Hat questions will be asked and you need to answer them in real time to get credit. ZOOM WILL NOT BE USED AFTER THE FIRST TWO WEEKS OF CLASS (i.e., when classes resume to in-person).

Course Assistants: Maggie Fox (Margaret.Fox-1@Colorado.EDU) and Courtney Schultze (Courtney.Schultze@Colorado.EDU). Maggie and Courtney will primarily be involved with grading homework assignments and exams.

Advanced Teaching Assistant: Isaac Richardson (Isaac.Richardson@Colorado.EDU). Isaac will be holding weekly office hours (3-4 PM on Wednesdays in BIOT E1B25) and he will teach two lectures during the course. He'll also be involved with homework and exam grading.

Office Hours: Wednesdays, starting 1/19, from 12:00-1:00 PM in BIOT D1B14. Office hours are via ZOOM the week of 1/19 (same link as for lecture).

Required Materials:

- **Course Text/ebook/McGraw-Hill Connect:** *Biology*, 12th Edition by Peter H Raven, George B Johnson, Kenneth A. Mason, Jonathan Losos, Tod Duncan; McGraw-Hill. As a student enrolled in CHEN 2810, you will automatically be enrolled in Inclusive Access, which gives you access to the online textbook (ebook) and McGraw-Hill Connect. You will be charged (somewhere around \$100) for the book on your tuition bill.
- **Subscription to Top Hat:** During class, I will have several "Top Hat" questions. These are "clicker-like" questions that can be submitted using a smart phone or tablet. Please do NOT use a laptop computer as having computers open during class can be distracting to other students. The subscription and participation during class is mandatory, comprising of 10% of your final grade in the course. See more information below under "Top Hat Questions". The subscription costs \$25 for the 4-month term.

Course Prerequisites: There are no prerequisites for this course.

Course Purpose: The purpose of this course is to develop a basic understanding of the science of biology. Particular emphasis will be placed on topics of potential importance and significance to chemical and biological engineers. This basic understanding will provide a solid foundation for subsequent courses related to biological and biomedical engineering.

Course Objectives: Upon completion of this course, you will have an introductory understanding of the following biological areas:

- *Biochemistry: the molecular structure of proteins, carbohydrates, and nucleic acids*
- *Cell organization*
- *Metabolism*
- *Genetics*
- *Molecular Biology*
- *Recombinant DNA Technology*
- *Evolution and Natural Selection*
- *Special Topics (Tissue Engineering, Stem Cells, etc.)*

Teaching/Learning Methods: Most of what you will learn in this course you will do so through the reading of the textbook. There is not enough time during class meetings to cover everything in the text. *Class meetings should be thought of as supplemental to the text.* During class, I will emphasize the important and/or confusing concepts and expand upon concepts in the book as well as present interesting topics that are not in the book. As such, reading is of utmost importance and class attendance is crucial. You will be expected to have read the assigned reading for each class period prior to coming to class.

Prior to each class, you must complete the McGraw-Hill Connect Reading Assignments. During class, you'll be expected to interact with/answer several Top Hat questions (an integral part of your final grade). Homework assignments and exams will test your understanding of the material.

Course Website: The course website is available on Canvas (canvas.colorado.edu). The website will be invaluable for this course and I will be using it extensively to post announcements, homework tips/clarifications, important documents and links, and updated grades throughout the semester. In addition, the daily Reading Assignments will be found in and completed on Canvas.

Email: *Email has been deemed by the University of Colorado as an official method of communication.* Please make sure you are having your Colorado.edu email forwarded to your main email if you do not use Colorado.edu email. Anything I announce via email is official. This may include things such as changes to the syllabus, changes to homework assignments, and other important course announcements.

Grading: Here is how the final grading will be broken down:

Assignment	Percentage of Final Grade
Reading Assignments in McGraw-Hill Connect	10%

Top Hat (in-class participation)	10%
Homework	30%
Exams (3 of these)	30% (12% for each of your best 2 exams; 6% for your lowest exam)
Final Exam (cumulative)	20%

A curved grading scale promotes competition among students and hinders learning. Therefore, the following grading scale will be set for the class:

How Are Grades Assigned?

Each of the components of your final grade, as well as the final course grade will be determined based on the following general rubric.

Letter Grade	Percentage Grade	Description
A	$93 \leq score \leq 100$	Exceeds all required elements of an assignment, and the quality of the work is considerably greater than what was required. The quality of the work is considerably above the class average and impressive to the evaluator.
A-	$90 \leq score < 93$	
B+	$87 \leq score < 90$	Meets all required elements of an assignment, and the quality of the work is better than what is required and demonstrated by the class average.
B	$83 \leq score < 87$	
B-	$80 \leq score < 83$	
C+	$77 \leq score < 80$	Meets all required elements of an assignment, no more, no less. Quality of assignment is satisfactory for college level work.
C	$73 \leq score < 77$	
C-	$70 \leq score < 73$	
D+	$67 \leq score < 70$	Fails to meet all required elements of an assignment, and/or the quality of the assignment is less than satisfactory.
D	$63 \leq score < 67$	
D-	$60 \leq score < 63$	
F	Less than 60	Only meets some of the required elements of an assignment, and/or the quality of the assignment is considerably lower than satisfactory. 50% of points are not guaranteed. At this level points are only given if some elements of the assignment are met. If not, very low percentages are likely.
Zero	0	Fails to meet any of the required elements of an assignment, and/or the quality of the assignment is well below basic standards of writing, comprehension, and/or ability to follow instructions; assignment is late or incomplete; assignment is not turned in at all; assignment shows signs of plagiarism or other forms of academic

	dishonesty.
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NOTE: I do not round scores up – if you earn a 92.99% then this is an A- and NOT an A!
Your work in the course = your grade; work harder if you want to ensure that you get the grade you want! Please don't email me at the end of the semester with a "I really need an XX grade in this course" type of an email – you will receive the grade that YOU earn!

Reading Assignments in McGraw-Hill Connect (10%): For each class period (Tuesdays and Thursdays), you will be responsible for completing a Reading Assignment in McGraw-Hill Connect. You will read sections of the book and then be asked questions about those sections. McGraw-Hill Connect will adapt to your strengths and weaknesses and focus on the material that you need to learn. Links to the Reading Assignments can be found on Canvas either in the Assignments tab or in the individual class pages.

Each student is expected to do these Reading Assignments *independently* with no help from other students, and they will be relatively easy if you read the assigned material. Reading Assignments must be completed and submitted by 4:00 pm the day of class. They will generally be available on the course website a week before they are due.

Instructions outlining how to register for McGraw-Hill Connect and Inclusive Access (online textbook) will be provided early in the semester.

Top Hat Questions (10%): We will be utilizing the **Top Hat** (www.tophat.com) system during class. Every student is required to bring either a smart phone or tablet to class each day in order to earn the Top Hat points. PLEASE DO NOT USE A LAPTOP COMPUTER AS HAVING COMPUTERS OPEN DURING CLASS CAN BE DISTRACTING TO OTHER STUDENTS.

Every class period will have between 1-4 Top Hat questions that I will ask to students. It is your responsibility to answer these questions during class. On occasion, I will have questions available before class and sometimes leave questions available to answer after class. A correct answer will receive 5 points, an incorrect answer will receive 3 points, and no answer will receive 0 points. Each question throughout the semester has the same weighting, so a class with four Top Hat questions will be worth more than a class with a single question.

At the end of the semester, I will drop roughly 10% of the lowest Top Hat scores for situations when your internet is not working or if you encounter other connectivity issues. That said, there's no need to let me know if occasionally your Top Hat response does not go through on a given day (it'll happen to everyone), but please DO let me know if it is a recurring problem.

Each student will need a one-semester subscription to Top Hat. I have negotiated a reduced subscription fee of \$25 for each student. To register for Top Hat, please go to www.tophat.com, click on Signup, select Student, then search for the course join code for the course: **289676**. I will also be sending out an invite to all students in the course

with a link to registration instructions, but if you add the course late then you will need to enroll manually using the instructions [here](#).

Homework (30%): On weeks that homework is assigned, it will be due on Thursdays by 11:59 PM on Canvas. Homework assignments will be completed individually and submitted on Canvas. Assignments will be comprised of a combination of multiple choice, short answer, and fill in the blank. There will be 8-10 homework assignments throughout the semester (you'll occasionally have a week off).

Exams (30%): There will be 3 exams spaced approximately 4 weeks apart. These exams will be taken during class time (maximum of 75 minutes). If you understand the homework, then you will do well on the exams. Exams will be given on the following Tuesdays during class: 2/15, 3/15, and 4/19.

Your lowest exam score will only be weighted 50% of the other two exams. For example, if you get a 90% on Exam #1, a 60% on Exam #2, and an 85% on Exam #3, your overall percentage for Exams will be: $(90\% + 0.5 \cdot 60\% + 85\%) / 2.5 = 82\%$.

Final Exam (20%): The Final Exam will be a cumulative evaluation of each student's knowledge of the subject material. The Final Exam will be given during the normal final exam scheduled time for this course (still pending as of late December, 2020).

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#).

IMPORTANT – Academic sanctions from the Department of Chemical and Biological Engineering: If you are caught for academic dishonesty associated with any assignments (lab, homework, exam, other), the Department of Chemical and Biological Engineering recommends that:

1. All involved students fail the course.
2. The incident is reported to the Honor Code Council honor@colorado.edu.

Availability of Assignments and Submission Policies

Reading Assignments (McGraw-Hill Connect) will generally be available a week before they are due. Homework assignments are submitted online on Canvas and are due on

Thursdays by 11:59 p.m. (see above). They are generally available a week before they are due.

You must submit all of your assignments (with the exception of the Top Hat questions and Reading Assignments, which are completed in McGraw-Hill Connect) via Canvas. Canvas provides a confirmation email when an assignment is submitted. Please create a folder in your email service/provider and keep all copies of these submission confirmation emails in case there is a submission issue/problem. We will make every effort to grade and provide feedback on homework assignments and other assessments within two weeks.

You are responsible for keeping copies of all work you submit for grading. Also, please plan to submit your homework in advance – there will be no exceptions in case your computer and/or internet connection are not working. Please plan to submit assignments at least a few hours early so that any connectivity or computer problems can be fixed or another computer/facility can be used.

Requirements for COVID-19

As a matter of public health and safety, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

CU Boulder currently requires masks in classrooms and laboratories regardless of vaccination status. This requirement is a precaution to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

If you feel ill and think you might have COVID-19, if you have tested positive for COVID-19, or if you are unvaccinated or partially vaccinated and have been in close contact with someone who has COVID-19, you should stay home and follow the further guidance of the [Public Health Office](mailto:contacttracing@colorado.edu) (contacttracing@colorado.edu). If you are fully vaccinated and have been in close contact with someone who has COVID-19, you do not need to stay home; rather, you should self-monitor for symptoms and follow the further guidance of the [Public Health Office](mailto:contacttracing@colorado.edu) (contacttracing@colorado.edu).

Accommodation for Disabilities

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

IMPORTANT: On the Monday before each exam (not earlier, please), Dr. Nuttelman will have a physical signup sheet for you to choose to take one of the 2 special accommodations exams. You can sign up in person (please do not sign up via email) through the end of class period on that Wednesday, after which Dr. Nuttelman will schedule rooms and set up proctors. These alternate exams will occur on the same day (Thursday) as the exam from 10:00 AM – 1:00 PM and 6:00-9:00 PM (last 2 hours coincide with normal exam). The signup sheet will indicate exam location.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Observance of Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance.

See full details at http://www.colorado.edu/policies/fac_relig.html

A comprehensive calendar of the religious holidays most commonly observed by CU-Boulder students is at <http://www.interfaithcalendar.org/>

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who

fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Conduct & Conflict Resolution policies](#).

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. The university will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or email cureport@colorado.edu. Information about university policies, [reporting options](#), and the support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options. To learn more about reporting and support options for a variety of concerns, visit [Don't Ignore It](#).