# Creating Accessible Syllabi

Developed by Christopher Hunt, ’17, Student Manager of Disability & Accessibility Services (DAS) 2016-2017

## Purpose

This document provides an instructional template for creating accessible syllabi. Each section provides an example for how the represented information could be formatted in an accessible manner. The syllabi content included has been provided by a Berea College faculty member and is not meant to persist beyond this template. It is included solely to provide accessibility practices in context to a real-life syllabi.

## Instructions

There are a few formatting elements in this document that should be noted and replicated in any accessible syllabi created in Microsoft Word.

1. **Use of Heading Formatting:** Using the **heading formatting tool** provided in the **Styles** bar is vital when creating section headings. This tool digitally tags the headings as a delineated line in the text, allowing the document to be more easily navigated by screen reader tools.
2. **Document Hyperlinks and Table of Content**
3. **Simple Tables:** Tables can be used; however, they must be simple enough so that the visual structure for the information is not vital to understanding the context for each content cell.
4. **Page Numbers:** Page numbers should be used to clarify navigation for screen reader tools.
5. **Arial Font:** Arial font is considered accessible font as the characters are simple and easy to delineate. Other sans-serif fonts are also acceptable options.
6. **Font Size:** Font size should be 12 pt. or greater to maximize accessibility.
7. **Alt Text:** For any included images, alternate text should be included as a descriptive paragraph.
8. **Descriptive Hyperlinks:** For electronically distributed syllabi, hyperlinks should be descriptive, versus showing the full link.

# Berea College CHM 340: Biochemistry 1 Learning Guide

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## General Course Information

### Term:

Fall, 2017

### Professor Name:

Dr. Clara Beeville

### Professor Email:

myemail@example.com

### Professor Phone Number:

828-123-4567

### Office Hours:

Mon, Wed, Fri: 2:30pm-5:00pm

Tus, Thurs: 8am-10am

### Class Location:

Draper 100

### Day and Time:

Monday, Wednesday, Friday: 1:20pm-2:30pm

### Prerequisites:

CHM 222

## Course Description

Biochemistry 1 begins a two-semester study of biological systems and structures using chemical methods. This class will introduce you to the incredible chemical sophistication of life and provide you with the opportunity to learn how it works on the molecular level. We will learn not only important details but also how those details build our understanding of life and even how they drive our society and human interactions. Here are the expectations

## Course Goals and Objectives

### Understand the chemical basis of life by becoming biochemically literate through

* 1. Understanding how thermodynamics and chemical equilibria are utilized by living systems,
	2. Analyzing the connections between a protein’s structure and its function,
	3. Explaining how the central dogma of molecular biology is a natural outcome of nucleic acid structure, &
	4. Using the structure of lipids to explain why they are critical both for membranes and energy storage,

### See how knowing biochemistry can save your life or at least explain it by

1. Appreciating the many connections between biochemistry and health,
2. Explaining how the theory of evolution is consistent with a molecular understanding of life, &
3. Empowering you to ask and answer your own questions about the molecular basis of life.

### Use this class to become a better scientist by

1. Applying your academic knowledge to new problems,
2. Working in small groups on both small (discrete) and large (integrated) projects,
3. Identifying important information through completing a biochemistry literature review, &
4. Communicating scientific material professionally and in an engaging manner.

### Be prepared for future endeavors, academic, professional, and personal

1. Building teamwork and leadership by working with collaboratively peers,
2. Improving your ability to take science examinations, including standardized multiple choice exams, &
3. Deciding what you need to succeed, be it persistence, resilience, self-confidence, or something else.

## Textbooks and Other Required Materials

### Text:

Berg, Jeremy M., John L. Tymoczko, Gregory J. Gatto, Lubert Stryer. *Biochemistry, 8th ed.*

## Attendance Policy

Attendance is absolutely vital. However, life gets in the way sometimes. You may take 4 personal days for whatever reason, be it illness, a school trip, sports, wedding, funeral, hangover, whatever. Every absence after 4 will deduct a third of a letter grade from your final grade. In other words, 5 absences will drop you from an A- to a B+ and 7 would drop you a whole letter grade.

## Technology Policy

Unless used for our class, electronics may not be used during lectures. Please silence cell phones before entering class. Any device utilizing headphones/ear buds are not permitted at any time. I reserve the right to count you absent from class if you disrupt lecture with inappropriate technology use, or other inappropriate behavior.

## Learning Assessments

|  |  |  |  |
| --- | --- | --- | --- |
| Type of Assessment | Timing | Evaluation | Grading Style |
| Feedback on class concepts | Every Class | 5% | Completion |
| Group Activity | Every Class | 5% | Completion |
| Sapling Daily Homework | Every Class | 10% | Graded |
| Four In-Class Exams | Every 3 Weeks | 40% | Graded |
| Research Project | Weekly Components | 30% | Mostly Graded |
| Final Exam | Finals Week | 10% | Graded |
| Course Final Grade |  | 100% |  |

## Course Work

Biochemistry is the study of biological systems and structures using chemical methods. This class will introduce you to the incredible chemical sophistication of natural systems and provide you with the opportunity to learn how your body (and life in general) works on the molecular level. If you join me on this journey, I promise that, even when the class ends, your adventures in biochemistry will just be beginning. Here are the expectations.

### Daily Sapling Homework…

encourages you to review the material in a timely manner. Every *lecture* day you will need to complete a homework assignment at [www.sapling.com](http://www.sapling.com) *two hours before* the lecture starts. The homeworks are untimed, but an active Internet connection is required. The homework assignment for a particular day will open as soon as the previous class ends. If you miss a question, you may guess again for a modest penalty. Hints are provided to help you figure out challenging answers. I will start each day by reviewing questions that a substantial percentage of the class struggled with and discussing your feedback on the previous class, submitted through Sapling. Most of you probably used Sapling in organic chemistry last year—this year the cost is up sadly. These questions are meant as reading checks—they should be simple enough for you to answer just by reading the material. I do not expect you to absorb and understand every detail on your own, just come to class having engaged with the topics beforehand. Included with your daily Sapling are questions about the readings (for the class ahead) and what we just covered (the class behind) so I can address the concerns raised by most of the students. Therefore, 15% of your final grade is wrapped up in completing your daily Sapling assignment, with 5% of that being automatically given (or not) just by sharing with me what is working for you or not.

### Daily Active Learning…

keeps you engaged and increases the quality of your learning. Here’s how it will work: I will assign you to diverse groups that will remain intact for the semester. Please sit with your group. Every class day, your group will be assigned a learning challenge. Each day, try to rotate roles (things like manager, reader, or recorder (or spy/ambassador if a group has 4 members). After an overview of the day’s material, I will share the assignment. Your group will have the rest of the class to work through the problems, using the course material as a guide. Working collaboratively is an incredibly important skill that takes both trust in your teammates and maturity to step up and do what is needed. Expect the class to be split roughly into three parts: 10 minutes of addressing questions from the previous class, 30 minutes of me discussing the new material, and 30 minutes of you actively engaging with the new material. These group assignments will be collected and assessed (binarily) for your group’s engagement.

### Class Exams…

are 70-minutes long, in-class, and happen about every 3 weeks. While material on exams is drawn mainly from lectures, I assume that you have read and understood the textbook and will be able to use it to fill in details not covered in lectures. This course is brand new, so while I will put all the old CHM 345 exams on the Moodle site for you to examine, know that we are going more slowly and more in-depth. You should still look at the old exams to see the traditional format for my exams.There are no makeup tests, but your final exam grade will replace your lowest exam grade if it will improve your average.

### The Final Exam…

will be the ACS standardized final for biochemistry. This test is cumulative and similar in format to the Organic Chemistry standardized exams you have already taken.

### The Research Project…

is discussed in separate, detailed handouts. Briefly, there will be regular assignments to keep you moving toward the completion of a website that describes the structure and function of a protein of your choosing.

## Academic Honesty

Plagiarism, cheating, & other forms of academic dishonesty are prohibited. Plagiarism can be defined as unintentionally or deliberately using another person’s writing or ideas as though they are one’s own. Plagiarism includes, but is not limited to, copying another individual’s work & taking credit for it, paraphrasing information from a source without proper documentation, mixing one’s own words with those of another author without credit, & downloading information from the Internet.

For the first instance of plagiarism, students are subject to the penalties in the Berea College Student Handbook and a “0” grade will be given for the assignment. A second instance of academic dishonesty will result in a failing grade for the course & may result in disciplinary sanctions as described in the Berea College Student Handbook.

<http://www.berea.edu/facultymanual/academicpolicies/academicdishonesty.asp>

## Class Conduct Guidelines

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## College Grading Scale

|  |  |
| --- | --- |
| A+ / A / A- = | Excellent work |
| B+ / B / B- = | Good work |
| C+ / C / C- = | Competent work |
| F = | Failing work |

## Letter Grade Percentage Points

|  |  |  |
| --- | --- | --- |
| A + 100 – 97A 96.9 – 93 A - 92.9 – 90  | B + 89.9 – 87 B 86.9 – 83 B - 82.9 – 80  | C + 79.9 – 77 C 76.9 – 73 C - 72.9 – 70  |

## Disability Statement

Berea College values diversity and inclusion and seeks to create a climate of mutual respect and full participation. My goal is to create learning environments that are accessible, equitable, and inclusive. If you encounter barriers based on the impact of a disability or health condition, please let me and Disability & Accessibility Services (DAS, 111 Lincoln Hall, 859-985-3237, lisa.ladanyi@berea.edu)) know immediately so that we can determine if there is a design adjustment that can be made to the course or if accommodations might be needed to overcome the barriers. Together we can explore all of your options and establish how to best coordinate accommodations for this course.

## Title IX

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an education program or activity that receives federal funds, including loans and grants. Title IX also covers student-to-student sexual harassment. If you encounter any sexual harassment or gender-based discrimination, please contact Katie Basham at (859) 228-2323 (titleix@berea.edu).

## VX. Schedule of Assignments

| Date | Section Theme | Daily Question/Focus | Readings | Major Assignment |
| --- | --- | --- | --- | --- |
| 1/13/16 | *How can a pure protein be the infectious agent in an incurable disease?* | Introductions  |  |  |
| 1/15/16 | Why is DNA at the interface between chemistry and biology? | Chapter 1 |  |
| 1/18/16 | Martin Luther King, Jr. Day—No Class | MLK Day |  |
| 1/20/16 | How do amino acids make up proteins, and why 20? | 2.1 though 2.2 |  |
| 1/22/16 | How do polypeptide chains fold into functional proteins? | 2.3 though 2.4 | Protein Selection & MindMap |
| 1/25/16 | How is the amino acid sequence connected to a specific protein's structure? | 2.5 though 2.6 |  |
| 1/27/16 | Jmol Tutorial  | Handout |  |
| 1/29/16 | How do we isolate a single protein out of the entire proteome? | 3.1 through 3.2 | Protein Structure Homework |
| 2/1/16 | How can we characterize proteins chemically? | 3.3 though 3.5 |  |
| 2/3/16 | How to study for a Saderholm Exam  | Review |  |
| 2/5/16 | Exam 1 | Exam 1 | Exam 1 |
| 2/8/16 | *How can protein residue from a coprolite be the key to solving an 800-year old crime?* | Biochemical Literature Search Tutorial  | Handout |  |
| 2/10/16 | How does the chemical structure of nucleic acids define their three-dimensional structure? | 4.1 though 4.2 |  |
| 2/12/16 | How are replication and transcription explained in terms of DNA/RNA structure? | 4.3 though 4.5 | Protein Bibliography |
| 2/15/16 | How is an RNA sequence converted into a polypeptide sequence? | 4.6 though 4.7 |  |
| 2/17/16 | What were the key genetic tools needed to revolutionize biotechnology? | 5.1 though 5.2 |  |
| 2/19/16 | How are these tools being used to advance the study of genes and whole genomes? | 5.3 though 5.4 | Protein Paper Outline |
| 2/22/16 | What is sequence analysis? | 6.1 though 6.2 |  |
| 2/24/16 | What is truly "conserved" in terms of evolution? | 6.3 though 6.5 |  |
| 2/26/16 | Exam 2 | Exam 2 | Exam 2 |
| 2/29/16 | Sequence Analysis Tutorial | Handout |  |
| 3/2/16 | *How as little as 10 mg of a nerve agent kill a person?* | How do hemoglobin & myoglobin transport oxygen? | 7.1 though 7.2 |  |
| 3/4/16 | What happens when a human inherits a mutation in hemoglobin? | 7.2 though 7.4 | Protein Sequence Homework |
| 3/7/16 | *How as little as 10 mg of a nerve agent kill a person?* | Spring Break |
| 3/9/16 |
| 3/11/16 |
| 3/14/16 | Website Tutorial | Handout | Protein Paper First Draft |
| 3/16/16 | How are enzymes and thermodynamics connected? | 8.1 through 8.3 |  |
| 3/18/16 | Why is the Michaelis-Menten Model so critical for understanding enzyme function? | 8.4 |  |
| 3/21/16 | How can an enzyme catalyst be inhibited? | 8.5 through 8.6 |  |
| 3/23/16 | What can be learned about enzyme mechanisms through studying proteases? | 9.1 |  |
| 3/25/16 | Good Friday—No Class | Good Friday | Website Jmol Draft Due |
| 3/28/16 | What can be learned about enzyme mechanisms through studying restriction enzymes and myosin? | 9.2 though 9.3 |  |
| 3/30/16 | Exam 3 | Exam 3 | Exam 3 |
| 4/1/16 | *If proteins & DNA define life, why are scientists putting so much energy into glycomics & lipidomics?* | How do allosterism and isozymes allow organisms to regulate enzyme activity? | 10.1 through 10.2 |  |
| 4/4/16 | How do covalent modification and proteolytic cleavage allow organisms to regulate enzyme activity? | 10.3 through 10.4 | Protein Paper Second Draft |
| 4/6/16 | What is the basic structure of a monosaccharide, and how can these lead to such diverse polymers? | 11.1 through 11.2 |  |
| 4/8/16 | Why are glycoproteins inherently different from polysaccharides? | 11.3 through 11.4 |  |
| 4/11/16 | What is the basic structure of a lipid, and what common types of lipids are found in living systems? | 12.1 through 12.3 | Peer Review Comments |
| 4/13/16 | What is the "fluid mosaic model?" | 12.4 through 12.6 |  |
| 4/15/16 | How are active membrane transport and thermodynamics connected? | 13.1 through 13.3 |  |
| 4/18/16 | How does thermodynamics and protein structure explain the functioning of membrane channels? | 13.4 through 13.6 |  |
| 4/20/16 | How can an organism use heterotrimeric G proteins or insulin-like signalling to direct cell actions? | 14.1 through14.2 |  |
| 4/22/16 | What happens when signal transduction pathways break down? | 14.3 through 14.5 | Completed Website |
| 4/25/16 |  | Exam 4 | Exam 4 | Exam 4 |
| 4/27/16 |  | Project Celebration—share in each other’s success |  |  |
| 4/29/16 |  | *A time convenient for the majority of the class to take a practice ACS final will be set* | Reading Period |  |
| 5/3/16 | Final Exam, ACS Standardized Exam, 3-5PM |