Final Exam Part III - Synthesis and Application

# Overview

This is your opportunity to synthesize and apply what you have been learning thus far in the course and use your creativity!

You do not need to get pre-approval for topics or options.

If you have any questions on tools or the expectations for an option, please message me as soon as possible. Please do not wait until several days before the due date to request assistance with tools, as I will not be able to assist on such short notice.

All exams are to be done individually; however, if making a video that includes other people in the video itself is acceptable, they should not be involved in constructing the content. For example, if you want to make a video that involves a group of students talking, you should have composed the entire script yourself.

Consider how you might use this exam in the future (since some options have you producing creative content). I have had some students in the past use their created videos, songs, and essays in future work and put them on their CVs (resumes). This type of exam is a learning experience in and of itself and a creative way to demonstrate your new biochemistry knowledge. It should help you synthesize and apply what you have discovered thus far in the course.

# Exam options

Choose one option below on a topic of your choice from modules in the course. Please read the description fully and ensure you have addressed all components in your submission. Each option is unique and has specific detailed requirements.

All exam options require accurate content, proper formatting, clear communication, fair use, and connection to biochemistry knowledge - including learning objectives. See attached grade rubric along with details in option descriptions.

1. Song analysis -- Analyze and discuss a biochemistry song from the provided list - these are selected from some of the songs posted in course materials. Write an essay (minimum 800 words (excluding song lyrics), including the word count in () at the end of the analysis) where you critically analyze every single line of the song. Essays must thoroughly explain every single line (line by line) of the song and connect that to the correct biochemistry content. Essays should address and explain which learning objectives (at least two) are met by the song content. Also, include a copy of the lyrics, what module it came from, a URL link to the song, and the song title and artist name. Upload the final Word document for submission.
2. Create your own animation/video/song - Compose your own biochemistry-related animation/video/song. Using the examples seen in class activities as inspiration, compose your own that demonstrates your new biochemistry knowledge. You may upload it to YouTube and include a direct link in your exam document or embed files directly. Productions must be accurate and comprehensive. Include a 2-3 page summary of how your production connects with course content. This summary should describe how your song connects to at least two learning objectives from that module. Videos in this category should be creative in nature and are not meant to be lectures (see option 6 for lecture option).
3. Write a Story – create a fictional story using your new biochemical knowledge on a module topic. You must fully demonstrate an understanding of the biochemical concepts in the composition. Stories may be of any genre and can include illustrations, but this is not a requirement. Stories must use a minimum of 10 terms from one module and a minimum of 1500 words. Include the total word count in () at the end of the story. Include a one-page addendum highlighting all the terms used in the story, with a full definition of each, along with a description of how the story specifically connects to at least two learning objectives from that module. Upload your final Word document for submission.
4. Review of Primary Research Essay – Find primary research on a biochemistry topic that APPLIES what you learned and is related to a module. Write a summary essay of at least 1500 words (approx. 6 pages double spaced, including word count at end of the essay) on the research you investigated. Include a discussion of at least one primary article and a review article on your topic. Include proper citations and use either MLA or APA format. Include an explanation of which learning objectives (at least two) would be necessary to understand the research content and how they connect to the work. Upload the final Word document as your submission.
5. Biochemist Scientists Spotlight - First, visit the [Scientists Spotlight website](https://scientistspotlights.org/) and review the Home and About us pages to acquaint yourself with the project. Note the focus on representing and shining the spotlight on counter-stereotypical scientists. Then, create an account in order to access the materials on the site (this is free).
   1. Part 1 - Read several spotlight pages at the college level (see spotlight search, filter for college). In a Word document, provide a 1-2 paragraph summary of a scientist spotlight you reviewed in your own words.
   2. Part 2 - Find a new counter-stereotypical biochemist to create a Scientist Spotlight for (not someone already existing on the site). Once you have a person in mind, see the page on Submit a Spotlight to see all of the information you need to construct a spotlight for submission (submission to the site itself is not required). The scientist you choose must be in accordance with the mission of this site, meaning it must be a counter-stereotypical scientist (i.e., someone from an underrepresented group). If you are unsure who you have chosen is appropriate, please message me to discuss. In addition to the items listed in the submission that is posted (picture, brief bio, resources, course resource, author picture/bio/explanation), also include an explanation of which learning objectives (at least two) would be necessary in order to understand the content of their research and how they connect to the work. Include all of this (spotlight submission requirements and additional exam requirements) in your Word document using the same headings outlined on the Submit a Spotlight page, and add the Learning Objectives connection at the end. Include proper citations and use either MLA or APA format. Optional -- you may submit your work to the site! (please feel free to share with me if you do!). For the exam, Upload the final Word document as your submission. Submission must be of a counter-stereotypical scientist for credit.
6. Lecturecast - record your own Lecturecast on a module topic. Kaltura Capture is a tool in Canvas that allows you to record your voice-over PowerPoint slides (this is what I use to record your lectures for the course). Alternatively, you can record a Zoom session where you screen share (connect with me if you need access to a Zoom session to record). Compose a PowerPoint file that contains 8-10 slides on a topic from one of the modules. Explain the content using text and at least 5 images/figures from that module. Address at least three learning objectives in the presentation. Lectures should be 10-12 minutes in length. Include the embedded recording and a text description (enter on-screen) of which module and learning objectives you addressed in your recording. See detailed walkthrough of all steps in the document below.