

Biology 385: Senior Seminar in Biochemistry
Spring 2022, Fridays 12:30-1:30

Dr. Harold Hoops

ISC 356

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Office hours: (subject to change after spring obligations are finalized)

Monday 10:00-11:00 a.m. in person

Tuesday 8:00-9:00 p.m., virtual only

Thursday 2:00-3:00 p.m. in person

If you cannot make it to my office during the in-person office hrs., I can meet virtually during this time by prior arrangement.

Course Philosophy:

This course is very different from most of the courses you have taken in that this seminar is much more process based than it is information based.

It is focused on communication – how to receive, process and disseminate ideas and evidence. We will practice reading and interpreting scientific primary and secondary literature. You will then get an opportunity to learn about some biochemical topic and then inform his or her classmates about it. Scientists live for communication – the best work in the world will not help anyone if nobody knows about it. Further, people become scientists because they want to know. Even if your career plans do not involve becoming a scientist, you will almost certainly need to understand the progress in science and to communicate with others. Thus, I hope what you learn in this course will be transferrable to whatever your future holds.

Outcome Goals for Course (NOT in order of importance). When you have successfully completed this course, you will:

- 1) Be able to find papers about topics in the primary literature.
- 2) Have experience in extracting facts, concepts, and principles from the primary literature.
- 3) Be able to explain how the techniques and data can be used to generate or evaluate ideas and hypotheses.

- 4) Be able to evaluate the strengths and weaknesses of arguments based on the fit of the hypothesis to what is known about the particular question or problem.

In the first part of this course, we will be analyzing contemporary scientific papers. This should serve as a model of how to deal with the primary and secondary literature and give you tools for your independent analysis. You will also be writing a clean draft of a paper (see below). The second part of this of the course will be your individual in-depth analysis of a topic in biochemistry, with particular emphasis on the primary literature. You will deal with the background, experimental methods and results and their significance. You will present your analysis orally and in writing.

Review type term paper: You should pick a topic that is contemporary and related to Biochemistry. Please show me potential papers before making your final decision. Your paper should be 5-12 pages (not including figures or references) about a biochemical question or topic that interests you.

It should contain:

- a) Information (properly cited) from at least four papers in Biochemistry (where Biochemistry is broadly defined). Of these, at least three must be in the primary literature. You can also add additional citations, including a few from reliable web sites if you wish.
- b) At least two different ***data-containing*** figures from different papers from the primary literature, and optionally additional figures from the literature or from electronic sources.
- c) A two to four sentence "executive summary" highlighting the most important aspect of your paper.

Format:

- a) You are analyzing not generating new information on the topic. Therefore, it should not have Introduction, Materials and Methods, Results and Discussion sections. Rather pattern it after a review article. Section headings are optional.
- b) Please double space your writing. This allows me to comment on it. It is not necessary (and will not yield any extra points) to do multiple columns or otherwise make it fancy. Blow me away with the clarity of communication, the depth of understanding and the level of insight – not fancy formatting tricks.
- c) Figures can be placed either in the text (preferred) or at the end. If you do put them at the end, print your paper single sided. If they are placed within the text, you can print either single or double sided. The reason for this is that I will be paying close attention to both the data and the word you use to interpret it. If you print on both sides and have

the figures away from the writing, it is hard to go back and forth between the words and figures.

- d) Use conventional formatting for citations both within the text and in the literature cited section. You can find more information in the book you used for freshman biology lab (Knisely, K. 2009. *A Student handbook for Writing in Biology*, third ed. Sunderland Massachusetts: Sinauer Associates. 296p), from the "Instructions to Authors" for any leading journal in biochemistry, or your instructor. There are multiple styles I will accept, but please do not mix them!
- e) Do not overuse acronyms!

Tentative class schedule:

The first several weeks will be spent going over some papers/topics I have picked, reviewing how to deal with the scientific literature and choosing your topics. We will also reflect on your educational career and explore future goals.

In the middle weeks of the semester, you will be responsible for choosing papers to analyze. We will read the outside of class and do some analysis in class. During this time you will have finalized your topic choice and begun working on your term paper. You will also do a mini-presentation on a data-containing figure from one of the papers you are analyzing for your term paper. By week 9 (April 1), you will submit a clean draft of your paper to me and to a classmate to review. The review will be due week 10 (April 8). You will present your topics weeks 12-14. The final paper will be due Friday May 6.

Grading:	Weekly participation	12
	Weekly assignments	12
	Analysis of figure from literature	6
	Draft 1 of paper	20
	Your review of colleague's paper	8
	Final paper	30
	Instructor's evaluation of presentation	12

various

Students with Disabilities: SUNY Geneseo will make reasonable accommodations for persons with documented physical, emotional or learning disabilities. Students should consult with the Director in the Office of Accessibility Services (<https://www.geneseo.edu/accessibility-office>) and me regarding any needed accommodations as early as possible in the semester.

Attendance: This class is designed to be participatory. You cannot participate if you are not here. Your final grade will be dropped 1/3 of a letter grade for any (and each) unexcused absence (e.g. from a B+ to a B). Unexcused absences where you miss a classmate's presentation will count double (e.g. from a B+ to a B-).

Health and Wellbeing in the COVID-19 era: The changes brought on by COVID-19 have impacted us all in multiple ways and will continue to do so during the upcoming semester. Your health and wellbeing are foundational to your ability to learn, and if you

find that you are feeling unwell and it is impacting your ability to complete your coursework, please reach out.

Similarly, I will occasionally ask for some patience and flexibility on your part. The pandemic is affecting faculty as well as students and creating demands that would not be present in an ordinary semester. If I am slow in responding to your email or late publishing some materials, please be patient. But feel free to send me a reminder e-mail. I will not be offended, and perhaps grateful for the reminder.