

Biology 385: Senior Seminar in Biochemistry
Spring 2014, Thurs. 10:00-10:50

Dr. Harold Hoops

ISC 353 (office moved summer 2013)

phone: x5378, E:mail: Hoops@geneseo.edu

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

Mon 3:30-4:30 p.m.

Tues 8:30-10:00 a.m.

Wed 3:30-4:30 p.m.

Thurs 8:30-9:30 a.m.

Fri 8:00-10:00 a.m.

I can also meet other times by appointment (before classes start is often good).

Course Philosophy:

This course is very different from most of the courses I teach and perhaps most of the courses you have taken because 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. Each student 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 particular 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, (6 class periods) 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.

Paper. You should pick a topic that is contemporary and related to Biochemistry. I would strongly suggest that you show me potential papers before making your final decision. Only one person in the class can pick a particular topic, and the first one to propose it will be the one who gets it. Your paper should be 5-12 pages (not including figures or references) about a biochemical question or topic than 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 within 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 words you use to interpret it. If you print on both sides and have the figures away from the writing, it is really 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!

Tentative class schedule

- Jan. 23 Introduction to course, description of course requirements, survey about techniques.
Assignments for next week:
1) Write a one-page paper about your Geneseo Experience, pros and cons.
2) Read Platt paper, prepare to discuss it.
3) Begin to think of paper topic.
4) Think about optimal dates for your presentation.
- Jan. 30 Discussion about journals, literature searching, scientific writing.
Selection of speaker dates.
Hand in essay.
Assignment for next week:
1) Read research paper #1 and answer questions on it.
2) Find at least three titles and abstracts of interest.
- Feb. 06 Abstracts and titles due. Discuss paper #1
Assignments for next week:
1) Read research paper #2 and answer questions about it.
2) Choose a topic for paper/presentation
- Feb. 13 Topics due, Discuss paper #2
Assignments for next week:
1) Find one figure in any paper and prepare a written and oral analysis of that figure.
- Feb. 20 Analyze figures in class.
Assignments for next week:
1) No specific homework, but work on your paper/presentation
- Feb. 27 Writing and editing
Assignments for next week:
1) Prepare a **clean** draft of your paper
- March 06 **Draft of your paper due.** Class discussion: What makes a good presentation?
Assignments for next week:
1) Read research paper #3
- March 13 Discuss paper #3
Assignments for next class:
1) Read research paper #4
- March 20 break
- March 27 Discuss paper #4
- April 03 Discussion on Don't be Such a Scientist by Randy Olson
- April 10 Student presentations #1 and #2
- April 17 Student presentations #3 and #4
- April 24 Student presentations #5 and #6
- May 01 Student presentations #7 and #8
- May 13 (final time slot, noon) TBA.

Note: the final version of your paper is due the week after your presentation.

Grading:	Weekly participation	12
	Weekly assignments	12
	Analysis of figure from literature	6
	Draft 1 of paper	20
	Final paper	30
	Instructor's evaluation of presentation	10
	Peer evaluation of presentation	10

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-).

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 Disability Services (Tabitha Buggie-Hunt, 105D Erwin, tbuggieh@geneseo.edu) and their individual faculty regarding any needed accommodations as early as possible in the semester.

Library Research Help: If you need assistance finding information for this assignment, Milne Librarians may be able to help. You can speak with the reference librarian on duty between 10am and closing time most days (ask for help at the service desk) or chat with a librarian online by clicking the "IM a Librarian" button on the library website (<http://www.geneseo.edu/library>). You can also contact Milne Library's Science Librarian, Bonnie Swoger, by emailing her (swoger@geneseo.edu) or requesting an in-person meeting (<http://bit.ly/milneresearchconsultation>).