BIO492 Independent Research Colloquium

Fall Semester 2002-2003 Shubhik DebBurman

BASIC INFORMATION

Class Hours:

8AM-9:30 AM F Johnson 215

Office Hours:

Whenever you need me!!

Given the independent nature of this course, I both expect and encourage you to make individual appointments when necessary to achieve satisfactory progress in your thesis writing and presentation requirements.

Dropping in:

If I am in the office and free of other duties, I'll be happy to meet with you.

If I am busy in office or in lab, please respect my non-availability and instead schedule an appointment.

In any case, email is always a good way to contact me.

Ph: 735-6040 (office), 615-2647 (home); avoid calling after 9 pm unless its an

emergency.

Email: debburman@lfc.edu

COURSE PHILOSOPHY

Welcome to BIO492 Independent Research Colloquium! You are taking this course because you are a highly committed senior biology major who has conducted original scientific investigations in the past year (and may still be actively engaged in it now). For the purpose of meeting the goals of this course and my assessment of your performance, I completely recognize that some of you are still actively engaged in your projects and not all of your experiments are completed and that will be accounted for. However, no matter where you stand in your research experimentation, our collective goal is to convert your research observations and data interpretations into a rigorous, clear and complete scientific manuscript that will serve as your senior independent thesis. You should also hope to learn how to effectively communicate your thesis to both peer audiences and to scientific research communities beyond. In other words, I hope to help you engage you in mastering certain scientific communication skills that most science undergraduates acquire only in graduate or medical school.

This course is likely one of the most flexible science courses you will take. There are no structured lectures, exams, and or textbooks. Despite that, you can expect the challenge to be very high, that you will be expected to become proficient in a new set of skills. I expect you to take with you a lifelong science communicational skill that should serve you well no matter what career path you choose for your future. To get you to begin this journey, my job is to specifically guide you in your quest to write and communicate a superior manuscript based on your thesis research. I will provide you with not only highly relevant information on the scientific writing process, but also provide you with several examples of superior student theses. I will also conduct a number of workshops designed to help you both write and orally communicate your findings. In addition to focusing on various components of a well-written thesis, I will provide

suggestions and tips that help you present your work as an outstanding rigorous poster and PowerPoint presentation. You should look upon me as someone to bounce ideas off as well. I do have high expectations of you and my goal is to help you meet your fullest potential. But, you have to do your job and do it very well. I do expect that you already possess strong self-motivation and a high enthusiasm for research and the scientific discovery process. With this in mind, this course will expect you to perform very independently, yet collaboratively. Sharing of ideas and resources will be constantly encouraged.

Writing and communicating science is not easy and, in that respect, you are very much a beginner. Although we will formally only meet once a week (and that too not every week), I will expect that you will spend between 5-8 hours every week on writing your thesis. To succeed, you have a four-fold task ahead of you. Firstly, with the help of my workshops and past thesis examples, you will write an initial thesis draft by the ninth week of this semester based on what you have collected as your data towards your senior thesis thus far. I will grade this initial thesis in terms of its acceptability as an initial draft before any revision, which in my books is simply "your best effort without the benefit of direct review of your written work by others". Secondly, you will formally engage in a collaborative peer appraisal process of each other's thesis through a series of group meetings. These "reviews" will be the most important source of critical feedback of your work aimed solely at improving and revising your thesis. As you will realize, on top of helping you write better manuscripts, my job is to help you learn to give critical feedback in positive ways to your peers (a skill that you will exercise often throughout your professional life) and I will grade your ability to engage in effective peer review. Thirdly, based on the peer review process, you will submit a revised thesis that I will grade once again, this time for your ability to incorporate the suggestions your peer group recommended. Lastly, I will require that you present your thesis in a poster format at the end of this semester, which I will grade in lieu of a final exam, and present a talk at the Argonne National Symposium for undergraduate Research on October 24.

You will experience tremendous freedom in this course, but with this freedom comes a need for responsibility and maturity. While, you can indeed do superbly well, you can just as easily slack off. Given that you are such talented seniors, I don't intend to "be on your back" about your work. Instead, I encourage you to fly high in this course by meeting the challenges ahead and come up on top with flying colors.

READINGS

<u>No required text</u>. But, I highly recommend you to read the following book that you may borrow from my office whenever you wish to consult it. I first used it when I was an undergraduate and I have used it as a reference ever since. I will refer to it often in this course.

How to Write and Publish a Scientific Paper (5th edition), by Robert Day.

GRADING

Attendance & Participation	10%
Thesis Initial Draft	20%
Peer Reviewer Performance	10%
Thesis Final Draft	20%
Poster & Argonne Presentation	40%
Total	100%

BIO493 SCHEDULE

Week	Date	Topic	
Week 1	-	NO CLASS; Pick up Syllabus & Readings for Discussion on Week 3	
Week 2	Sept 5	What to get Out of Workshops? How Thesis Review Work? Critical Comparative Reading of a Senior Thesis & A Primary Article Discussion Topic: Title, Abstract, & Bibliography Workshop	
Week 3	Sept 12	Title and Abstracts Due Discussion Topic: The Introduction & Methods Workshop Begin writing Introduction/Methods	
Week 4	Sept 19	Bibliography Due Discussion Topic: The Results & Discussion Workshop Begin writing Results/Discussion	
Week 5	Sept 26	Introduction/Methods Pre-Drafts Due Discussion Topic: Creating Effective PowerPoint Thesis Presentations	
		Poster submission deadline: Argonne Symposium	
Week 6	Oct 3	Results/Discussion Pre-Drafts Due Discussion Topic: Creating Effective Research Posters	
Week 7	Oct 10	NO CLASS Write thesis & Prepare Poster	
Week 8	Oct 17	NO CLASS Write thesis & Prepare Poster	
Week 9	Oct 24	NO CLASS Write thesis & Prepare Poster	
		Present Posters at the 14 th Annual Argonne Symposium for Undergraduates in Science, Engineering & Mathematics (Argonne, IL)	
Week10	Oct 31	Thesis Pre-Drafts Due!	
Week 11	Nov 7	Thesis Peer Review	
Week 12	Nov 14	Thesis Peer Review	
Week 13	Nov 21	Thesis Peer Review	
Week 14	Nov 27	Work on your thesis draft	
Week 15	Dec 5	Work on your thesis draft	
Week 16	Exam Week	BIO492 Senior Research Colloquium (Johnson Atrium) THESIS FINAL DRAFT DUE! (This presentation will be a preview of what you might present at one or more of	

(This presentation will be a preview of what you might present at one or more of several scientific meetings that you may be invited to attend this upcoming spring semester), potentially among them:

16th Annual Chicago Signal Transduction Meeting (Chicago, IL) May 2004

Lake Forest College Student Symposium (Lake Forest, IL) April 2004 17th National Council of Undergraduate Research (Utah, Salt Lake City) March 2004

National meetings