Biology 380 – Fall 2009
Seminar in Biology – “Just Science”

Class. CRN 14148 Wed 10:00 pm - 10:50 pm ISC 137

Instructor. Dr. R. D. Simon, ISC 358 - Phone 245-5279
Office Hours: M 1:00-3:00, Th 10:00-12:00. Call for appointments at other times.
E-mail: simon@geneseo.edu

The Goals of Bio 380:

a. There are many skills that you need to know but that have not included formally in
the courses you have been taking in the Biology program, such as maintaining a
notebook and keeping track of the new literature. This course is an opportunity to
learn/practice those skills.

b. Finding information about a topic however is in general no longer a problem for
students. Ten years ago, students had to work hard to find and obtain a few
references for the typical term paper assignment. Today, the problem is dealing with
the 40 Web sites and 1,500 references that one retrieves in a generalized search for
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Biology 380 – Fall 2009

Seminar in Biology – “Just Science”

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**Seminar in Biology – “Just Science”**

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Biology 380 – Fall 2009
Seminar in Biology – “Just Science”

Class. CRN 14148 Wed 10:00 pm - 10:50 pm ISC 137

Instructor. Dr. R. D. Simon, ISC 358 - Phone 245-5279
Office Hours: M 1:00-3:00, Th 10:00-12:00. Call for appointments at other times. E-mail: simon@geneseo.edu

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Biology 380 – Fall 2009

Seminar in Biology – “Just Science”

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Biology 380 – Fall 2009
Seminar in Biology – “Just Science”

Class. CRN 14148 Wed 10:00 pm - 10:50 pm ISC 137

Instructor. Dr. R. D. Simon, ISC 358 - Phone 245-5279
Office Hours: M 1:00-3:00, Th 10:00-12:00. Call for appointments at other times.
E-mail: simon@geneseo.edu

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**Class.** CRN 14148 Wed 10:00 pm - 10:50 pm ISC 137

**Instructor.** Dr. R. D. Simon, ISC 358 - Phone 245-5279
Office Hours: M 1:00-3:00, Th 10:00-12:00. Call for appointments at other times.
E-mail: simon@geneseo.edu

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## Tentative Activities and Assignments

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The Goals of Bio 380:

a. There are many skills that you need to know but that have not included formally in the courses you have been taking in the Biology program, such as maintaining a notebook and keeping track of the new literature. This course is an opportunity to learn/practice those skills.

b. Finding information about a topic however is in general no longer a problem for students. Ten years ago, students had to work hard to find and obtain a few references for the typical term paper assignment. Today, the problem is dealing with the 40 Web sites and 1,500 references that one retrieves in a generalized search for information. The key to success is being able to: (1) evaluate information, (2) focus on a problem, thereby limiting resources, (3) effectively save, organize, and re-use the information you have obtained, and (4) present information using both written and oral communication in a coherent and effective manor. This course will give you the opportunity to use these skills.

c. You need practice working on a long-term project, in great part because that is how one works in the world outside of the College.

d. The Biology seminar is the place where the “writing requirement in the discipline” is certified. You will do some writing in the course, and if there are problems, this is the opportunity to move you in the right direction.

Class Objective:

Working biologists must not only keep up with the advances in their own research areas, but must know what is happening in other areas of science as well. Most scientists are voracious readers, and are often interested in many areas of science – some very far from their own specialties. One way to “keep up” is to read either or both of the weekly magazines that cover all areas of science – Science or Nature. This course will use the journal “Science” to look at recent advances in a broad set of disciplines.
The journal Science is published by the American Society for the Advancement of Science (AAAS), the largest group of scientists in the country.

“AAAS was founded in 1848 and incorporated in 1874. Its mission is to advance science, engineering, and innovation throughout the world for the benefit of all people. The goals of the association are to: enhance communication among scientists, engineers, and the public; promote and defend the integrity of science and its use; strengthen support for the science and technology enterprise; provide a voice for science on societal issues; promote the responsible use of science in public policy; strengthen and diversify the science and technology workforce; foster education in science and technology for everyone; increase public engagement with science and technology; and advance international cooperation in science.”

The journal:

“Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in Science—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by AAAS or the institutions with which the authors are affiliated.”

Using “Science” as our main reading material will give us a chance to look at the science in a “professional” context, dealing not only with technology and advances in knowledge, but with issues such as politics, meetings, books, international issues/interests, funding sources, jobs, etc. Using this journal will give you the opportunity to look at a broad scope of our discipline, and you will even become interested in something way outside of your current narrow perspective.

**Laboratory Notebook:**

Every scientist needs to know how to keep a laboratory notebook. The notebook represents the formal record of what has been done. It is not only used to provide the information for any publications that may be written, but in cases of patent applications, when properly done and signed, the notebook is the formal record when new ideas, processes, and devices are discovered. The notebook, like a diary, is a place to list ideas, make notes about readings, and plan presentations. **In this course, every student will have his/her own notebook and it will be used as the formal record for all your activities.** It is hoped that you will want to continue keeping a notebook as part of your science education and your scholarly work.

There are a variety of approaches to using a notebook:

- [http://www.swarthmore.edu/NatSci/cpurrin1/notebookadvice.htm](http://www.swarthmore.edu/NatSci/cpurrin1/notebookadvice.htm)
- [http://www.leapingfromthebox.com/art/rlg/labnotebook.html](http://www.leapingfromthebox.com/art/rlg/labnotebook.html)
- [http://biology.clc.uc.edu/fankhauser/Labs/Keeping_a_Notebook/Notebook_Procedure_Micro.html](http://biology.clc.uc.edu/fankhauser/Labs/Keeping_a_Notebook/Notebook_Procedure_Micro.html)
Notebook Suggestions:

- Always use ink. If you do make a mistake, put a line through it and continue
- Each page will be numbered sequentially.
- Leave pages for a Table of Contents at the front of the Notebook to keep track of what was entered.

Your Notebook should contain:

- Reading notes.
- Thoughts about how you might want to organize a presentation for each paper you have read.
- Notes for your long term project.
- Weekly log on the activities for your project.
- Notes on the class presentation of a paper.
- Classroom notes for this course.
- Ideas, thoughts you may have on any topic. After all, it is your notebook.

The notebook will be collected at the end of the semester and will be a part of your grade.

Class Organization:

Throughout the semester, the class will move through the following activities:

I. Introductory Sessions. The first two classes will be an introduction to the literature in general and to the journal Science in particular. We will also try to address issues such as: finding and evaluating information; how to read a paper; and, how give presentations.

II. Literature Discussions. In this portion of the course, papers will be assigned and then presented and discussed in class. The papers will be chosen from recent issues of Science and will cover a broad range of topics. We will choose papers because they represent important discoveries for the discipline, teach us something unexpected or new, or your instructor thinks they to be “cool” papers. All papers are available electronically as full-text.

It is expected that everyone will read the articles chosen for the class period BEFORE class. Because you are serious Biology students I will expect that you will read them with intensity, think about what you read, make good notes in your notebook, and be able to lead a discussion on them. For each class, a "random draw" will determine which two students will lead the class discussion of the paper that has been read for the class.

III. Student Project: Every student will do a long-term project. In conjunction with your instructor, you will pick a research article from an issue of Science no older than one year. You will be expected to read all references and background papers relevant to this article, and to carefully study the supplementary material that is on-line. You will than write a 2,000 word
paper that places the paper in context of its research area, and makes it clear why this paper is so important, interesting, and/or useful that it was published in a journal as important as science. You will give a talk in class as the expert on this paper and topic.

Science magazine itself does a brief “contextual analysis” of important articles under the section entitled ‘Perspectives’. In essence, you are asked to write a “Perspective” on the paper you choose.

The paper you choose:

- Must be the reports of primary research, not reviews.
- May not have a “Perspective” already written about them.
- May not be Medicine articles alone but must have some significant component of biology, biochemistry or molecular biology?

This activity that will involve a significant amount of work, but it is hoped that the you will learn something and that you will have "fun" working with the topic you choose.

Before the third week of class you are to send the instructor (simon@geneseo.edu) an e-mail message listing three papers (in order of preference) that you wish to do. Topic assignments will finalized by the fourth week of class.

I want you to work on the project throughout the semester and not in the week before your scheduled presentation. Therefore, over the course of the Semester you will be asked a number of tasks with your topic. Please note that some of the work must be done first, such as finding references because interlibrary loan takes time.

To aid in this process, I expect that you will keep a weekly notes of your progress on the topic in your Notebook.

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