COMMUNICATING SCIENCE

Biology 5010-FA and Biology 5010-FAO Graduate Seminar

COURSE OUTLINE FALL 2014

Instructor:

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Lectures: Friday, 2:30 am – 5:30 pm
AT 1010

Course Objectives – *What will you learn?*

During this course you will ...

- develop skills to present scientific information in different formats addressing varied audiences.
- apply information from lectures and textbook to organize your thoughts and ideas for effective written and oral communications.
- become comfortable in discussing issues relating to different areas of biological sciences.
- learn how to critically and fairly evaluate the presentation of a piece of scientific work.
- appreciate the breadth and depth of fields in biology by approaching all sessions with an analytical mindset and asking questions on issues you find interesting.
- improve and expand your critical understanding of major concepts in the biological sciences.

By the end of this course you will be comfortable in ...

- organizing your thoughts to structure your thesis and research publications, asking the relevant scientific question(s), developing the necessary research protocols, record and analyze and interpret data to arrive at conclusions.
- attending scientific presentations, seminars, asking questions, participating in discussions and exchanging scientific ideas.
- giving your own oral presentations.
- evaluating scientific papers and reports.

Course Structure – *How will you learn?*

Introductory lectures
At the beginning of the semester there will be 2-3 introductory lectures by the instructor emphasizing i) the need for scientific communication, ii) scientific methods, iii) the general structure and content organization of a thesis, research proposal preparation and oral presentation of thesis proposal.

Biology retreat
Each year in the fall the new graduate students along with previous years graduate students and selected upper level undergraduate students organize a two-day retreat at Kingfisher field centre consisting of brief indoor oral presentations followed by nature walks, canoeing and short field trips in the nearby forests and lakes. This provides an opportunity to meet the fellow students and faculty and discuss science in a relaxed and informal setting. Pursuant to the Saturday evening dinner, we will hold a "Round Table" discussion of each new graduate student's research topic. This will be an informal discussion and opportunity for feedback from faculty and peers. Students will be asked to present verbally 1) their research topic, 2) personal and academic rationale for this research, and 3) the types of data they might collect to answer the question(s) they set forth. The idea of this exercise is to encourage students to begin to think about these concepts, and set the stage for their thesis proposal presentations later in the semester.

Attendance and participation
Class time will provide students with the opportunity to discuss major themes in the Biological Sciences. Participation is the lifeblood of this course and students are expected to contribute positively. Please come to class prepared to discuss the week's assigned readings or contribute to the discussion of a seminar presentation.

Refer to chapter 18 of textbook.

Oral presentation
Each student will give one oral presentation for 15 minutes followed by 5 minutes of question and answer. For most students, this will be a practice of their thesis proposal presentation as required for the MSc program in Biology. If you have already presented a thesis proposal, the presentation should cover a summary of your research progress. Please sign up in advance for these presentations.

Refer to chapters 13 to 16 of textbook.

Summary of speaker's presentations and critiques: Students are required to familiarize themselves with the subject matter of upcoming seminar presentations (often from the presenters' own synopses) before class. Time permitting, following the seminar, the guest speaker will meet separately with the BIOL-5010 class for 15-30 minutes to further discuss questions and other items brought forward by the students. A two-page 1.5 line spaced summary of the presentation and discussion is to be submitted for evaluation following four presentations; the first two seminars are compulsory, then submit one in the student's own field of research and one outside their field of research. **Note that participation at each and every seminar is mandatory**

Abstract writing and presentation exercise
Students are required to write an abstract from a journal paper/manuscript and present the work in a brief 5minute power-point presentation to the class. The abstract and presentation will be marked.

Refer to chapters 7 to 11 of textbook, specifically chapter 10

Reflection
At the end of the semester, you will submit a 1.5 to 2 page descriptive account reflecting on your course experience. The evaluation of this submission will be based on your ability to identify relevant issues, in-depth reasoning (giving specific examples) and suggestions for improvements. You should work towards this paper throughout the semester. Keeping a small notebook to chronicle your thoughts might be helpful. Consider the following questions:

- What have you learned so far?
- What did you like and why?
- What did you not like and why?
- Has the course achieved the objectives stated? Why or why not?
- What areas would need more attention? Why and how?
- Are you satisfied with your own contributions to the course? Why or why not? What are your plans for improvement?
- How did your course experience change throughout the two semesters?

Written Submissions
All written work is due within one week (7 days) of being assigned and will be returned, graded with comments, one week following. Late submissions will not be accepted. Please remember this a graduate level course and an emphasis on critical thinking, formulated into coherent, well-structured, publication caliber writing is required. Furthermore, spelling and grammatical structure appropriate to graduate level performance is expected and will be duly evaluated on all written work. You are strongly encouraged to seek out one or more proofreaders to review all written work prior to submission.

Textbooks and Resources
Required textbook
Davis, M. 1997. Scientific papers and presentations. 2nd ed. Academic Press, an imprint of Elsevier Science, San Diego, Ca. Available in the book store.

Recommended additional books, available on reserve in the library
Day, R.A. 1998. How to write and publish a scientific paper. Oryx Press, Pheonix, AZ. Call-#: T 11 D33 1998 (also available as E-book on-line)

Briscoe, M.H. 1996. Preparing scientific illustrations: a guide to better posters, presentations, and publications. Springer, New York, NY. Call-#: Q 222 B75 1996

Scientific style and format: the CBE manual for authors, editors and publishers. Cambridge University Press, New York. 1994. Call-#: Z 250.6 B5C8 1994 (Paterson Reference, Main Floor, non-circ.)

Additional Readings
"How to Be a Good Graduate Student" by Marie des Jardins. 1994. Available on the WWW at: http://www.cs.indiana.edu/how.2b/how.2b.html

More suggested readings and assigned readings will be distributed throughout the course.