BIOM*4300 Biomedical Communications

Fall Semester 2012

"What is it that we human beings ultimately depend on? We depend on our words. We are suspended in language. Our task is to communicate experience and ideas to others."

— Niels Bohr (1885 –1962).

"As ideas are preserved and communicated by means of words, it necessarily follows that we cannot improve the language of any science without at the same time improving the science itself; neither can we, on the other hand, improve a science without improving the language or nomenclature which belongs to it."

— Antoine-Laurent Lavoisier (1743 –1794).

Class location and meeting times:

Mon, Wed & Fri: TBA

Coordinator:

Dr. Neil J MacLusky, Department of Biomedical Sciences
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Office hours Thursday and Friday 9-10a.m.

I. Rationale for the course:

The ability to communicate information and ideas to others is fundamental to every branch of science. Communications skills are reported by employers to be the qualities they most desire in potential job applicants. In human medicine, the communication skills of physicians have repeatedly been demonstrated to correlate with patient satisfaction and clinical outcomes, while training of medical students in a communications-oriented curriculum has been shown to significantly improve their success in clinical board examinations[1]. Clinical residents in training are required to regularly present clinical case studies to the rest of the department, as well as to actively participate in the teaching of undergraduate medical students. As a result, medical and veterinary schools are increasingly using measures of communication ability as an integral component of their evaluation processes for potential students. Yet, little or no attention is paid in most B.Sc. programs to development of this particular skill set.

Unfortunately, communication skills do not come naturally, nor can they be learned by simply reading about the subject. They require development, with the opportunity for practice and feedback, before students can feel truly comfortable expressing themselves orally and in writing, in logical, clear and concise terms. The aim of this course is to provide students entering the third or fourth year of the Bio-medical Science major with instruction on the development of effective scientific communication skills. The skills learned in this course will be of value in the other fourth year courses in the Bio-medical Science B.Sc., the majority of which now utilize

independent learning projects, written assignments and class presentations, as methods of assessment. They will also help students in preparing for their post-graduate careers.

1. Yedidia MJ, Gillespie CC, Kachur E, Schwartz MD, Ockene J, Chepaitis AE, Snyder CW, Lazare A and Lipkin M Jr. Effect of communications training on medical student performance. Journal of the American Medical Association. 2003 Sep 3;290(9):1157-65.

II. Course Aims and Objectives:

The general aims of this course are:

(1) to assist participants in developing clear, concise and logical approaches to biomedical communications.
(2) to enhance participants' writing abilities, both in the translation of complex scientific language to lay terms that can be understood by the general public and in discussing research results in a clear and concise fashion.
(3) to develop participants ability to collect scientific information and synthesize it into coherent short oral presentations

The course is divided into three units, an introductory unit that will fill the first three weeks of the course, followed by two other units which will run in parallel for the remainder of the semester.

Specific Learning Objectives by Unit:

Unit 1: Methods of Biomedical Communications

The first three weeks of the course will review the historical development of methods of scientific communication, provide students with instruction in the use of on-line scientific literature research tools, and finally outline the basic principles of effective scientific presentations. The critical features of a good scientific argument, as well as common errors of logic in developing arguments and hypothesis, will be presented and discussed.

Unit 2: Writing Exercises

The presentation and writing components will start at the beginning of week 4. Three different writing exercises will be assigned: two short and one long.

<u>The short exercises</u> will consist of:

(A) a scientific paper (chosen by the instructor) which students will be required to read and summarize in the form of a lay report (1,000 words or less) of the type that one might expect to see in the science editorial section of a newspaper.
(B) a series of reprints will be posted to the D2L site for the course. Students will each have to choose one of these reprints and summarize it, in no more than two single-spaced pages, as a handout that might be used, for example, in a journal club presentation.

<u>The long assignment</u> will consist of an unpublished draft manuscript that is complete in terms of the Abstract, Introduction, Methods, Results, Figures and References; but with the Discussion removed by the instructor. The task for students will be to take the material available to them and write a discussion that fairly reflects both the literature provided and the results presented, WITHOUT exceeding the total word limit for the paper defined by the journal instructions.

Comments and feedback on all the written assignments will be provided by the instructor, as learning tools for the students as they progress through the course. Students are also encouraged to avail themselves of the writing assistance resources available through the University of Guelph Library (the web link is provided, below). Notably, the Library provides a number of useful handbooks on writing in the sciences, as well as the opportunity to arrange meetings with professional writing consultants (up to 3 meetings per semester, per student). Use these resources will help to avoid the most common structural and grammatical errors during the preparation of the written assignments.

Unit 3: Presentation Exercises

Presentations will take up the majority of the in-class time, after the first three weeks of the course. Three basic presentation formats will be included, with feedback being provided by the instructor and other students. All of the topics in the course will be drawn from currently active areas of research in Health Sciences, so in addition to providing the students with practice at developing oral presentations and improving their speaking ability, the information presented in the classes will be informative and of interest to the entire class.

(A) Students will be divided into groups of 3-4. Each group will be instructed to develop a 10-12 minute presentation on a topic chosen by the group, the only limitation being that the subject must be relevant to the Bio-medical Science curriculum. A few minutes will be available at the end of each presentation for questions from other students. All students in the class will be required to submit written comments every Monday critiquing the preceding week's presentations (1 paragraph per presentation).

(B) Brief topics will be assigned in advance to individual students. Each student will then have to develop a short (≤ 5 minute) presentation on the topic as the take-off point for discussion with other students in the class.

(C) Two 1h class sessions during the course will be devoted to debates, with the students divided into teams arguing the pros and cons of proposals assigned by the instructor.

III. Format and Procedures:

This is a lecture- AND discussion-based course, with some independent and some group learning components. Students are expected to participate in discussions and to conduct themselves in a scholarly and respectful manner at all times.

IV. Recommended Texts and Resources for the course

Web based resources

• University of Guelph Writing Assistance Resources:
http://www.lib.uoguelph.ca/assistance/writing_services/undergraduates
• Ten Golden Rules of Academic Integrity:
http://www.academicintegrity.uoguelph.ca/integrity_rules.cfm
• What is Plagiarism?
http://www.academicintegrity.uoguelph.ca/plagiarism.cfm
• Vancouver Style for biomedical citations:
http://www.academicintegrity.uoguelph.ca/plagiarism_citation.cfm

Publications:

• Attacking Faulty Reasoning (6th edition), TE Damer, Thomson-Wadsworth, 2009.
• Booth V. Communicating in science: writing a scientific paper and speaking at scientific meetings. Cambridge England; New York: Cambridge University Press, 1993.
• Day RA. Scientific English: a guide for scientists and other professionals. Phoenix, AZ: Oryx Press, 1992.
• Day RA, netLibrary I. How to write & publish a scientific paper. Phoenix, Az: Oryx Press, 1998.
• Gilpin AA, Patchet-Golubev P. A guide to writing in the sciences. Toronto: University of Toronto Press, 2000.

V. Calculation of Course Grades

First written assignment	10%
Second written assignment	10%
Third written assignment	20%
Group oral presentation	10%
Individual written critiques of the oral group presentations	5%
Individual short oral presentations	10%
Student debate participation	5%
Final written exam (critiques of papers posted to D2L)	30%

VI. Academic Integrity

The University of Guelph takes a very serious view of Academic Misconduct. Included in this category are such activities as cheating on examinations, plagiarism, misrepresentation, and submitting the same material in two different courses without written permission. Students are expected to be familiar with the section on Academic Misconduct in the Calendar and should be aware of the possible penalties for contravening the University's rules on this subject.

VII. Accommodations for students with disabilities

Students should register with the Centre for Students with Disabilities to verify their eligibility for appropriate accommodations, and then contact the course coordinator to discuss specific needs.

VIII. Course Evaluation

Students will be asked to complete a questionnaire on the instructor's teaching abilities. This information is required by the university to evaluate faculty performance for purposes of Tenure, Promotion and Annual Pay Increases. Administered by a third party rather than the instructor, these evaluations will be delivered to the instructors only after the final grades have been submitted to the Registrar's Office. The numerical ratings from the form will be made available to the Chair for administrative purposes. If a student wishes the Chair to see his/her written comments in addition to the scores, he/she must include with those comments his/her name (legibly printed) and signature.