**Biogeochemistry and Global Change: Seminar Guidelines (2008)**

**Seminar assignment**

Biogeochemical processes underlie many of the most pressing global change issues. Here, you are asked to prepare and deliver a seminar on the biogeochemical aspects of a global change issue that is of particular interest to you. As you will soon discover, there is a vast amount of readily accessible information currently available on many global change topics. Nevertheless, national and international policies and management practices are ultimately derived from primary scientific research into global change issues. This exercise is aimed at familiarising you with how to access, synthesise and present both general and primary scientific information on a global change issue of particular interest to you.

**Learning Objectives:**

1. Consult the general literature and synthesise the current status of the global change issue that you choose.
2. Search the primary scientific literature for a 'case study' of research on that global change issue.
3. Identify the hypothesis under test in the primary scientific paper.
4. Critically assess that research.
5. Evaluate the contribution of the research to our understanding of the global change issue.
6. Develop oral presentation skills.

**Seminar Exercise:**

Identify a global change issue that has a clear biogeochemical dimension, and that is of particular interest to you. Consult the general literature and synthesise the current status of that global change issue. Search the primary literature (i.e. sources that present original research data) for a relevant article that you will use as an example or case study.

Make an oral presentation (20-25 minutes), aimed at stimulating ideas and debate for subsequent discussion. The presentation should be suitable for an interested public audience, and may include the following headings:

1. The Global Change issue: Introduction to the global change issue covering the nature of the problem, its spatial extent, and its historical context.
2. Biogeochemistry: Description and explanation of the main biogeochemical processes underlying the issue, and critical evaluation of the evidence.
3. Research paper introduction: Introduce the primary research study that you are using as an example. Describe the study's focus by identifying and articulating the specific hypotheses that were actually tested by the data reported in the paper.
4. Research paper results: Outline the methodology briefly, and present the study's main results.
5. Research paper assessment: Critical assessment of the study's main results and conclusions. This component may contain both positive and negative aspects. Furthermore, it should identify and evaluate any assumptions underlying the study.
6. Research paper context: Evaluation of the study's contribution to the global change research issue.
7. The future: Conclude your seminar by offering conclusions on the future importance of your particular global change issue, and potential mitigation.

**Seminar convenor:**

Note that the main objective of this exercise is the process of synthesising information on a global change issue, and critically evaluating a primary source of global change research from the scientific literature. You are not expected to understand (or present) the fine detail of the results and data analyses from your chosen primary research paper. Concentrate on the main points and big issues. Use the paper as a spring-board to highlight your chosen global change issue. You should allocate about half of your presentation to introducing the global change issue, and the remainder to presenting your chosen research paper.

Seminars will be graded according to the following criteria:**a) basic content; b) presentation clarity; c) identification of the hypotheses tested in the research paper; d) enthusiasm; and e) discussion leadership.**

**Seminar participants:**

The success of this course as a learning instrument will largely depend on the quality of the discussions in each seminar. The main objective is to encourage the thinking process of identifying and assessing the major biogeochemical components relevant to a wide range of global change issues, and to learn about those factors that distinguish global change issues. Initiation and participation in the discussions following each seminar is a very important part of the learning process in this course. Please read the research paper circulated prior to each seminar, and come prepared with a typed list of three relevant discussion ideas or questions relating to the global change issue or the research paper. These questions will be graded on the basis of their quality (i.e. their perceptiveness and relevance).

**Resources:**

The library staff are available to assist you with electronic searches if necessary. In order to ensure that each student selects a different seminar topic and research paper, please contact me for approval ([groganp@queensu.ca](mailto:groganp@queensu.ca)) as soon as you have made your choice of topic.

Primary research paper choices should be selected and sent to me in time so that I can assess them before meeting with each one of you to agree a final choice. Please ensure that all this is done in enough time so that the citation can be circulated to the rest of the group at least one week before your seminar.

If you are having difficulties with any of the assignments, please contact me.

Also note that there are substantial resources here at Queen's to help you prepare an effective seminar. See the Learning Strategies Development web site for details <http://www.bewell-dowell.org/sos/>

Learning Strategies Workshops: [http://www.bewell-dowell.org/sos/workshops.html#](http://www.bewell-dowell.org/sos/workshops.html)

Drop-in one on one advisory consultations: The Learning Commons, Stauffer Library, every week day from 1.30-4.30.