
Applications in Agroecology (AGEC4510)
Course Outline, 2007 (January-April)

Lecture: Tues/Thurs. 11:30 - 12:45; Rm 342 Ellis Building

Instructors:

Dr. Ryan Cardwell, Agribusiness & Agric Economics
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Dr. Annemieke Farenhorst, Soil Science
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Dr. Don Flaten, Soil Science
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Dr. Bill Guenter, Animal Science
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Dr. Bruce Murray, Manitoba Agriculture Food and Rural Initiatives
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Dr. Kees Plaizier, Animal Science
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Program Chair: Dr. Brian Amiro, Soil Science, Room 364 Ellis Building, Tel 474 9155,
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Class Objectives:

This class will involve comprehensive investigations of topics in various fields of agroecology. Within these investigations we will apply the knowledge we have learned in previous courses in our program, analyse and come to understand the complexity of issues, make evaluations of available options within topics, and synthesize new scenarios and outcomes related to the topics. The ability to work independently (or in teams) outside of the class is important.

Class Format:

The Class is divided into 4 modules and taught by 6 instructors from the areas of Agricultural Economics, Plant Science, Animal Science and Soil Science. We emphasize the ability to draw on knowledge from many areas of Agroecology. Synthesis of holistic ideas is key.

Grades and Marking:

Each module is evaluated separately, based on assignments by the instructors. Equal marking weight is given for each module at 25% of the total course mark for each.

SCHEDULE OF MODULES

January 4, 2007. All instructors and students meet to discuss the course.

Modules 1 and 2: Nutrient dynamics and management.

January 9 to February 22, inclusive.

Instructors: Dr. Don Flaten, Dr. Kees Plaizier and Dr. Bill Guenter

Format: This portion of the course will be split into two parts.

In part one, the class will review information on the risks of environmental pollution caused by livestock manure and urine production in intensive livestock production systems. The review will aim to recognize the role of feeding strategies and manure management to reduce the environmental impact of manure application. The role of regulations that govern application of manure will also be described.

In part two, the class will use the Glenlea dairy as a model farm to estimate the quantities of manure and urine production and to develop a manure management plan. The class will also recommend ways to reduce environmental pollution from this farm.

Evaluation Scheme:

Attendance and participation at lectures is mandatory. A short report on beneficial management practices for environmentally responsible manure management (50%) and a completed manure management plan for the Glenlea dairy (50%) will be used to evaluate the student's performance in this module. **The report and plan are due on March 1.**

Module 3: Innovation and cost-benefit analysis: an application to genetically-modified crop technology

February 27 to March 15, inclusive.

Instructor: Dr. Ryan Cardwell

Instructional component:

1. Economic analysis of innovation and technological change.
2. Background/refresher on tools of economic cost-benefit and policy analysis.
3. Case study of a cost-benefit analysis.

Project component: Students will complete group written reports and formal presentations that conduct cost-benefit analyses of the decision to license GM crop technology for public use. Students will be provided with the information required to conduct a short cost-benefit. The report should be written as a policy position paper, intended as a briefing for bureaucrats and politicians.

Evaluation:

Quiz on cost-benefit analysis case study = 10%

Presentation of group cost-benefit study = 30%

Written component of group cost-benefit study = 60%. **Due: March 22.**

Attendance is mandatory.

Reading Materials: There is no assigned text. Required readings will be copied and distributed to students as needed.

Module 4: Pesticide use and risk

March 20 to April 5, inclusive.

Instructors: Dr. Annemieke Farenhorst and Dr. Bruce Murray

Outline:

Pesticides are the active ingredients in pest control products. They are designed to mitigate or prevent the injurious, noxious or troublesome effects of pests on human life. There are over 1,200 active ingredients used worldwide in about 8,000 pest control products. Pesticides are important tools in agriculture that help to minimize economic losses caused by weeds, insects and pathogens. Although their use has helped to increase crop yields and value, they may also contribute to environmental degradation.

This section of the course discusses a range of pesticides that are important to agricultural production in Manitoba. This includes examples of the challenges that Manitoba producers have in controlling pest organisms and how Manitoba producers can improve their pest management practices to optimize pest control (Dr. Bruce Murray). This also includes examples of the extent of pesticides used in Manitoba and how the pesticides used could influence air, water and soil quality, and human health (Dr. Annemieke Farenhorst).

Evaluation:

One assignment to design a hypothetical agricultural system and then develop a beneficial pest management practice for this system. Your beneficial pest management practice should promote economic and environmental sustainability. The hypothetical agricultural system should include a range of carefully-selected crops that are relevant to growing conditions in Manitoba and grown in rotation. **Assignment due: April 10, 1130am.**

April 10: Wrap up. All students and Brian Amiro to discuss course.

ACADEMIC DISHONESTY

This course abides by the University's statement on Academic Dishonesty including sections dealing with 'plagiarism and cheating' and 'examination impersonation' outlined in the University General Calendar. **Any infraction is a serious offence. The student is responsible to consult this policy.**

PLAGIARISM AND CHEATING

To plagiarize is to take ideas or words of another person and pass them off as one's own. In short, it is stealing something intangible rather than an object. Obviously it is not necessary to state the source of well known or easily verifiable facts, but students are expected to acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, including information from Internet sources. To provide adequate documentation is not only an indication of academic honesty but also a courtesy which enables the reader to consult your sources with ease. Failure to do so constitutes plagiarism. When in doubt about any practice, ask your advisor or professor and refer to the Student Advocacy website.

It will also be considered plagiarism and/or cheating if a student submits a term paper or laboratory report written in whole or in part by someone other than himself or herself, or copies the answer or answers of a fellow student in any test, examination, or take-home assignment.

Plagiarism or any other form of cheating in examinations or term tests (e.g., crib notes) is subject to serious academic penalty (e.g., suspension or expulsion from the faculty or university). A student found guilty of contributing to cheating in examinations or term assignments will also be subject to serious academic penalty.

EXAMINATIONS - IMPERSONATIONS

Students are referred to section “4.2.8 Examinations: Personations” of the University Undergraduate Calendar and to Section 362 of the Canadian Criminal Code.

Reading resources:

There is no required textbook for this course. Reading resources will be identified and assigned by the coordinator of each module at the start of the module.