COURSE TITLE: Environmental Chemistry of Pesticides and Related Compounds

Department: Soil Science  
Course Number: SOIL7180  
Academic Session: Winter 2014  
Credit Hours: 3

Prerequisites and how they apply to this course: Consent of instructor

Classroom Location: TBA
Meeting Days and Class Hours: TBA
Department Office location: Ellis 362  
Phone Number: 474-8153

Instructor Information:

Course coordinator:  
Dr. Annemieke Farenhorst, Professor of Soil Science, 380 Ellis Bldg. E-mail: farenhor@cc.umanitoba.ca, Phone: 474-6858.

Course Philosophy

Students' Learning Responsibilities
Students are required to attend all lectures; to actively participate in each lecture; and to complete assignments by the set deadline.

Why this course is useful?
This course advances the student understanding of the fate of organic chemicals in the soil (biosolids, manure, sediment) through laboratory experiments and/or critical reviews of the literature. Students early in their graduate studies could use this course to develop and refine their research questions and proposal.

Who should take this course?
Graduate students in agriculture and environmental sciences.

How this course fits into the curriculum
This is an optional course at the graduate level.

Course Description/Objectives

Calendar Description
(Formerly 040.718) Pesticide chemodynamics, biological and non-biological transformations of pesticides in water, soil and biota, bioaccumulation and food chain distribution of pesticides and related xenobiotics and environmental fate models will be discussed. Prerequisite: SOIL 7150 (or 040.715) or consent of instructor. Not offered in 2005-2006. 3.000 Credit Hours

Instructional Methods
Laboratory instructions (optional), discussions, practices in writing and oral presentations.

Course Objectives
The objective of SOIL7180 is to familiarize students with the current literature of the fate of organic chemicals in soil (biosolids, manure, sediment), as well as older key publications in this area of study. This includes learning about theoretical concepts, practical implications and research methodologies. An optional component is for the students to conduct a small independent research project. Students early in their graduate studies could use this course to develop and refine their research questions and proposal.
Learning outcomes
Upon completion of the course, the student should:
- Fully understand fundamental processes of the sorption (e.g., kinetics, Freundlich equation, hysteresis, competitive sorption) and biodegradation (e.g., kinetic models, respiration, mineralization) of organic chemicals in soil (biosolids, manure, sediment).
- Understand mathematical models to estimate movement of organic chemicals in soil (e.g., PRZM).
- Have a good working knowledge of how to conduct a literature search, and write a scientific proposal and/or manuscript
- Be able to give a good oral presentation using visual aids on the fate of organic chemicals in soil (biosolids, manure, and sediment)]
- Be able to address questions appropriately [concerning the fate of organic chemicals in soil (biosolids, manure, and sediment)]
- Be able to engage in a scientific discussion confidently [concerning the fate of organic chemicals in soil (biosolids, manure, and sediment)]

Assignment Due Dates
As given by the instructor in class.

Grade Evaluation
Course will be tailored to individual students or groups of students. Assignments and their evaluation criteria will be set by the instructor in the beginning of term in consultation with the student(s).

Course grades (% and letter):

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<thead>
<tr>
<th>Percentage Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100</td>
<td>A+</td>
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<tr>
<td>70 - 75</td>
<td>B</td>
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<tr>
<td>60 - 69</td>
<td>C+</td>
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<td>&lt; 50</td>
<td>F</td>
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Texts, Readings, Materials

Textbook(s) – Authors, Titles, Edition
Students are responsible for obtaining their own reading materials, including textbooks and refereed journal articles as needed. In most cases, the students will have to conduct a literature search and develop a list of relevant materials.

Course Policies

Late/Missed Assignments: Every student is allowed ONE penalty-free extension per term. The maximum time of that one extension is 7 days and a later submission will result in 0% on the assignment. A late submission of a subsequent assignment will result in 0% on that assignment.

Missed Exams: No exams.

Academic Integrity
It is your responsibility to become acquainted with the University’s policy on plagiarism and cheating. As an example, you cannot copy text from the Internet and paste it into your assignment – doing so would result in a grade of zero percent (F) on your assignment. In addition, any suspected case of plagiarism will be immediately reported to the Head of the Department of Soil Science with possible severe academic penalties.

Use of Third Party Detection and Submission Tools
Electronic detection tools may be used to screen assignments in cases of suspected plagiarism.