SOIL3520 - Pesticides: Environment, Economics and Ethics
2013 Course outline

Course Description
SOIL 3520 Pesticides: Environment, Economics and Ethics (Formerly 040.352) provides a comprehensive examination of the benefits and risks of pesticide use. Topics include: Characteristics of pesticide products and formulations used in Western Canada; History, practice, successes and failures in the use of pesticides in agriculture; Pesticide use for protecting human health; Pesticide fate processes in air, soil and aquatic environments; Atmospheric pesticide contamination; Pesticide surface and groundwater contamination; Pesticide toxicity to organisms, including humans; Pesticide residues in food; Pesticide regulations; Pesticide risk indicators. Not to be held with 040.411, 038.454 or 040.454.

Instructor
Dr. Annemieke Farenhorst, Professor of Soil Science, 380 Ellis Bldg. E-mail: Annemieke.Farenhorst@ad.umanitoba.ca
Phone: 474-6858.
Office hours: by appointment.

Teaching assistant
Karin Rose, M.Sc. student, 276B Ellis Bldg. E-mail: umrose5@cc.umanitoba.ca
Office hours: by appointment.

Examinable materials and course website address
Materials for exams will be drawn exclusively from two sources: (1) lectures and (2) examinable materials posted on the course website. Examinable materials will be posted throughout the term as lectures progress. The course web-site address is http://farenhorst.ca/soil3520/. The web-site is password protected and you have to enter User name: SOIL3520 and Password: atrazine

Marks (Course total = 100%)
1. Midterm exam (45 minutes) (15%).
2. Final exam includes all of the course material (2 hours) (30%).
3. Poster Assignments - Top herbicides in Manitoba:
   • Your poster (15%)
   • Your short presentation, questions and answers (5%)
4. Video Assignments - Benefits and risks of pesticide use:
   • Your written outline (10%)
   • Your creative video (25%)

Course grades (% and letter)

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100</td>
<td>A+</td>
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<tr>
<td>80 - 89</td>
<td>A</td>
</tr>
<tr>
<td>76 - 79</td>
<td>B+</td>
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<tr>
<td>70 - 75</td>
<td>B</td>
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<tr>
<td>66 - 69</td>
<td>C+</td>
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<tr>
<td>60 - 65</td>
<td>C</td>
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<td>&lt; 50</td>
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Tolerance on missed exams
If a student misses the midterm exam without a valid medical certificate, the final exam will be marked out of 45% and the midterm exam mark will not be taken into account when calculating the course total. Failure to write the final exam will result in a mark of zero on that exam unless the student was granted permission to defer the exam for medical, compassionate, or special reasons, and completes the remake final exam.

Tolerance on late assignments
All assignments must be completed for a final course grade to be assigned. Every student is allowed ONE penalty-free extension per term, but the student must obtain the written consent of Dr. Annemieke Farenhorst prior to the assignment deadline. The maximum time of that one extension is 7 days and a later submission will result in 0% on the assignment. In all other cases, the penalty for late assignments is 5% per assignment per day until 0% is reached. For example, if your creative video is submitted one day late without having permission for a penalty-free extension, the maximum percentage
you can earn for your video will become 20%. If it is submitted 2 days late, the maximum percentage you can earn for your video will become 15%.

**The bad stuff**

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 mark of zero on that assignment. In addition, any suspected case of plagiarism will be reported as per University’s policy on plagiarism and cheating with possible severe academic penalties.

**Course timetable (tentative) including exam dates and due dates for assignments**

<table>
<thead>
<tr>
<th>Heading</th>
<th>Lecture topics and dates</th>
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<tbody>
<tr>
<td>Introduction.</td>
<td>Lecture 1. Course content and assignments.</td>
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<tr>
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<td>January 7.</td>
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<tr>
<td>About pesticides.</td>
<td>Lectures 2-8. Definitions and characteristics; History of pesticide use; Types and amounts of pesticides used in Canada, emphasizing Manitoba. Benefits and risks of pesticide use.</td>
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<td>January 9, 11, 14, 16, 18, 21 and 23.</td>
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<td>Current challenges.</td>
<td>Lectures 9-11. Environmental and human health risks associated with pesticide use in low- and medium-income level countries; Challenges for better pesticide regulations in poor and rich countries.</td>
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<td>January 25, 28, and 30. <strong>Your written outline (10%) is due Wednesday January 30 midnight.</strong></td>
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<td>February 1, 4, 6 and 8.</td>
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<td><strong>February 11.</strong></td>
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<td>Video Tips.</td>
<td>Lecture 17-18. Examples of videos from previous students; How to use the video software installed on the course computer; Questions and answers about your own video footage; scheduling of video camera use till course end.</td>
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<td>February 13 and 15.</td>
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<td>Midterm break.</td>
<td>No lectures.</td>
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<td>February 18, 20 and 22.</td>
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<td>Pesticide fate in soils.</td>
<td>Lectures 19-32. Sorption, degradation, erosion, runoff, and leaching processes; Pesticide fate modeling and risk assessments; Impact of land management practices on pesticide fate in soils; Bioassay studies; Group 2 carry-over issues in western Canadian soils.</td>
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<td>February 25 and 27; March 1, 4, 6, 8, 11, 13, 15, 18, 20, 22, 25 and 27.</td>
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<td><strong>Your poster (15%) is due before Friday March 1 midnight.</strong></td>
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<td><strong>Your presentation slides are due before Monday March 11 midnight.</strong></td>
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<td><strong>Your need to present your slides in the lectures on May 15 or 18.</strong></td>
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<td>Good Friday.</td>
<td>No lecture.</td>
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<td>March 29.</td>
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<td>Pesticide fate in soils (continued).</td>
<td>Lectures 33-34. Continuation of lectures on fundamental pesticide date processes with emphasize on western Canadian soils.</td>
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<td><strong>Your creative video (25%) is due in the lecture of Wednesday April 3 between 9:30 and 10:00 am.</strong></td>
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<td>April 1 and 3.</td>
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<td>Videos and wrap up.</td>
<td>Lectures 35-37. Student Video Presentations; Course summary; Questions and Answers; Example questions for final exam.</td>
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<td>April 5, 8 and 10.</td>
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