## General Information

**Course Title:** ENVS\*3020 Pesticides and the Environment

**Course Description:** The role and use of pesticides by various facets of society and the effect of these pesticides on biological activities in the environment. A research proposal is required.

**Credit Weight:** 0.5

**Academic Department (or campus):** School of Environmental Science

**Campus:** DE

**Semester Offering:** Fall 2015

## Instructor Information

Michelle Bowman

bowmanm@uoguelph.ca

## GTA Information

TBA

## Course Content

### Specific Learning Outcomes:

We know more about pesticides than any other group of commercially-used chemicals. Understanding pesticides and the environment helps you develop an understanding of other chemicals and the environment.

The objectives by the end of this course are that you should:

* become conversant with the major uses of pesticides in agriculture, public health, forestry and landscapes;
* recognize the major chemical groups of pesticides and be able to describe their likely uses, mode of action, environmental impact, etc.;
* be able to define the chemical, physical and biological properties of pesticides that are important for determining and predicting their fate and impact in the environment;
* be able to choose from a group of pesticides, the most suitable pesticide for a particular use;
* understand the roles of environmental activists as well as environmental scientists;
* before making public statements or decisions, learn to research both sides of environmental issues; and
* be able to extrapolate from the principles learned in this course to issues involving other types of chemicals in the environment.

### Lecture Content:

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| Week 1 | Introduction, History & future of pesticide discovery |
| Week 2 | Pest losses & pesticide use for public health agriculture, forestry & landscapes |
| Week 3 | Pesticide: Selection, formulation, & application; Uptake & movement in pests |
| Week 4 | Important classes of pesticides, Inhibitors of photosynthesis |
| Week 5 | Metabolism of pesticides, Pesticide residues analysis |
| Week 6 | Pesticide residue in food |
| Week 7 | Fate & movement of pesticides in the environment |
| Week 8 | Toxicology of pesticide active ingredients, Ecological risk assessments |
| Week 9 | Human health risk assessment with pesticides |
| Week 10 | Resistance to pesticides, Biotechnology & pest management |
| Week 11 | Minimizing use, Legislation, Pesticides for world food production |
| Week 12 | Understanding risks of landscape pesticides through science |

### Course Assignments and Tests:

| **Assignment or Test** | **Due Date** | **Contribution to Final Mark (%)** | **Learning Outcomes Assessed** |
| --- | --- | --- | --- |
| Letter to Editor/Pre-Research Proposal | October 2 | 10 | Understand stakeholder roles, research both sides of issues |
| Midterm 1 | October 18 | 10 | Become conversant with major uses & chemical groups of pesticides  |
| Midterm 2 | November 8 | 10 | Define properties of pesticides that determine their fate & impact |
| Research Proposal | November 20 | 20 | Practice designing a research program of individual interest |
| Participation | Weekly | 20 | Extrapolate course principles to chemicals in the environment  |
| Final Exam | December 16 | 30 | Develop ability to select suitable uses of pesticides groups and predict associated toxicity & risks  |

### Final examination date and time: December 16, 14:30-16:30

### Final exam weighting: 30%

## Course Resources

### Required Texts: Pesticides and the Environment by G.R. Stephenson and K.R. Solomon

### Recommended Texts: Silent Spring by R.L. Carson

### Other Resources: The course website will be the organizational hub for the entire semester. From it you will find updates, due dates, links to study materials, discussion groups, special multi-media objects - and more.

## Course Policies

### Grading Policies

All assignments must be submitted electronically via the course website. The penalty for late submissions is 15% per day (e.g., 3% of your final grade per day for an assignment worth 20% of your final grade). Failure to complete midterms online by the specified deadlines will result in a grade of zero.

### Course Policy on Group Work: You are expected to communicate through the discussion area of the course website in a mature, professional manner. This means complete thoughts, complete sentences, relevant subject lines and proofreading before you post. You are also reminded that proper "Netiquette" includes commenting on people’s ideas but not their personalities or characters.

### Course Policy regarding use of electronic devices and recording of lectures: Electronic reproduction of online course content is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor. Note that course content includes all online calculations and midterm exams.

## University Policies

### Academic Consideration:

The University of Guelph is committed to supporting students in their learning experiences and responding to their individual needs and is aware that a variety of situations or events beyond the student's control may affect academic performance. Support is provided to accommodate academic needs in the face of personal difficulties or unforeseen events in the form of Academic Consideration.

Information on regulations and procedures for Academic Consideration, Appeals and Petitions, including categories, grounds, timelines and appeals can be found in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml).

### Academic Misconduct:

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Detailed information regarding the Academic Misconduct policy is available in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml).

### Accessibility:

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS), formerly Centre for Students with Disabilities (CSD), as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email sas@uoguelph.ca or visit the [Student Accessibility Services website (http://www.uoguelph.ca/csd/)](http://www.uoguelph.ca/csd/).

### Course Evaluation Information:

End of semester course and instructor evaluations provide students the opportunity to have their comments and opinions used as an important component in the Faculty Tenure and Promotion process, and as valuable feedback to help instructors enhance the quality of their teaching effectiveness and course delivery.

While many course evaluations are conducted in class others are now conducted online. Please refer to the [Course and Instructor Evaluation Website](https://courseeval.uoguelph.ca/) **for more information.**

### Drop period:

The drop period for single semester courses starts at the beginning of the add period and extends to the Fortieth (40th) class day of the current semester (the last date to drop a single semester courses without academic penalty) which is listed in [Section III (Schedule of Dates) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/).

The drop period for two semester courses starts at the beginning of the add period in the first semester and extends to the last day of the add period in the second semester.

Information about Dropping Courses can be found in [Section VIII (Undergraduate Degree Regulations and Procedures) of the Undergraduate Calendar](https://www.uoguelph.ca/registrar/calendars/undergraduate/current/).

## Additional Course Information

**E-mail Communication**
As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

**Copies of out-of-class assignments**Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

### **Time Required:** Every student is of course different, but you should plan on spending an average of 8-10 hours per week on this course.

**Technical Expectations and Requirements**

You are expected to have an understanding of Internet and email basics. You will be navigating and searching the Internet and corresponding with others in your class using web-based discussion boards and email.

Please ensure that your computer system meets the [**minimum requirements**](http://www.uoguelph.ca/courselink/systemRequirements.html).

If you do not have these technical requirements, consider either upgrading your personal computer, or using a machine on campus. Trying to use someone else’s computer for the course may prove to be frustrating and difficult.

Please follow this quick [**System Check**](https://courselink.uoguelph.ca/d2l/tools/system_check/systemcheck.asp?ou=6605) to determine if you have the right setup. (Results will be displayed in a new browser window).

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| Prerequisite(s): | [[BIOL\*1040](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/includes/discontinued.shtml) or (2 of [BIOL\*1050](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/c12/c12biol.shtml#BIOL1050), [BIOL\*1070](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/c12/c12biol.shtml#BIOL1070), [BIOL\*1080](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/c12/c12biol.shtml#BIOL1080), [BIOL\*1090](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/c12/c12biol.shtml#BIOL1090))], [CHEM\*1040](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/c12/c12chem.shtml#CHEM1040) |
| Equate(s): | [ENVB\*3030](https://www.uoguelph.ca/registrar/calendars/undergraduate/2014-2015/includes/discontinued.shtml) |