# Course Outline ENVS 3310 Winter 2016

## General Information

**Course Title:** ENVS\*3310 Soil Biodiversity and Ecosystem Function

**Course Description:**Soils are the site of complex interactions between minerals, water, air, organic matter and living organisms. This course will focus on the organisms that live in the soil and their activities in soil ecosystems, soil as a habitat for organisms, the key role of microorganisms in nutrient cycles and plant-microbe relationships and will review basic soil microbial and ecological principles.

**Credit Weight:** 0.50 Credits

**Academic Department:** School of Environmental Sciences

**Campus:** Guelph

**Semester Offering:** W16

**Class Schedule and Location:**

**Lectures:** Tues. & Thurs. 11:30-12:50, ALEX 309 **Seminars:** Thurs. 2:30-3:20, ALEX 024

## Instructor Information

Instructor Name: Dr. Kari Dunfield

Instructor Email: dunfield@uoguelph.ca

Office location and office hours: AH 306; TBA

## GTA Information

GTA Name: Jemaneh Habtewold

GTA Email: jhabtewo@uoguelph.ca

GTA office location and office hours: AH 305; TBA

## Course Content

### Specific Learning Outcomes:

On completion of this course, students will be able to:

1. Remember terms associated with soil microbial environment
2. Identify types of organisms in the soil food web
3. Integrate ideas about microorganisms and soil nutrient cycles
4. Recognize the importance of soil microbial communities to environmental sustainability and function

### Lecture Content:

|  |  |
| --- | --- |
| **Module 1: Soil as a Microbial Environment** | **Textbook Chapter** |
| Soil habitatMicrobial distribution in soilRhizosphere | 2, 8, 11 |
| **Module 2 Soil Biota** |  |
| Intro to main groups of microorganismsRNA based classification- three domains of life | 3, 4, 5 |
| **Module 3 Microbial Ecology**Community Structure | 10 |
| **Module 4: Biochemistry**Microbial Metabolism | 9 |
| Carbon Cycling | 12 |
| Nitrogen CyclingBiological Nitrogen Inputs | 14, 15 |
| Other Nutrients- S, P, metals | 16 |

### Seminars:

|  |  |
| --- | --- |
| **Seminar Outline: ALEX 024 & 020** | **Dates.** |
|  |  |
| **Seminar 1**Demo 1: Winogradsky Column | Jan 28 or Feb 4, 2016 |
|  |  |
| **Seminar 2**  | Feb 11 or 25, 2016 |
| Meet Kari to approve and discuss paper topic |  |
| **Seminar 3** Midterm Exam Review | March 3, 2016 |
| **Seminar 4**Review exam with TA | March 17 or 24, 2016 |
| **Seminar 5** Microbes in the News presentation \*if necessary  | March 31, 2016 |
| **Seminar 6**Review for Final Exam | April 7, 2016 |

**Course Assessment:**

|  |  |  |
| --- | --- | --- |
| **Category:** | **Percentage of Final Grade** | **Learning Objective** |
| **Assignments (In class Presentations & Handouts)** **Meet the Microbe – January 26, 2016** **Microbes in the News – March 29, 2016****Midterm Exam- March 8, 2016:**  | 10%15%20% | 2.4.1&2 |
| **Term Paper –** Approval of News Event and Related Paper Topic: **Due Feb 25, 2016** Paper: **Due April 8, 2016**  | 5%15% | 4. |
| **Participation**  | 10% | 1-4. |
| **Final Exam – April 22, 2016 7:00 – 9:00 PM** | 25%  | 3&4 |

## Course Resources

### Required Texts:

Paul, E.A. 2015. Soil Microbiology, Ecology and Biochemistry. 4th ed, Academic Press. Available online from the library.

## Course Policies

### Grading Policies:

 **Absences or Failure to Submit a Major Assignment or Exam**

If you wish to claim illness or compassionate reasons for missing any major class responsibilities you must contact the instructor and submit appropriate verification as indicated in the Undergraduate Calendar.

Failure to submit a graded assignment on the due date will result in a reduction of 10% for each day the assignment is late. Graded assignments are due at the beginning of lab time on the due date.

### Course Policy on Group Work: There are no assignments requiring group work in the course.

### Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes 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.

## 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**

None