



ENVS*3310 Soil Biodiversity and Ecosystem

Function

Winter 2019

Section(s): C01

School of Environmental Sciences

Credit Weight: 0.50

Version 1.00 - January 08, 2019

1 Course Details

1.1 Calendar 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.

Pre-Requisite(s): 10.00 credits including (1 of AGR*2320, ENVS*2060, SOIL*2010)

Equate(s): ENVS*3200, SOIL*3200

1.2 Course Description

Same as calendar description

1.3 Timetable

Lectures: Tuesday and Thursday 11:30-12:50; MCKN 307

Tutorial: Thursday 2:30-3:20; AH 030.

1.4 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

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Instructor: Dr. Paul Voroney

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3 Learning Resources

3.1 Required Resource(s)

Soil microbiology, ecology and biochemistry, 4th Edition. (2015) Edited by E.A. Paul, Elsevier. * text available online from the library (Textbook)

Global Soil Biodiversity Atlas (Other)

<https://www.globalsoilbiodiversity.org/atlas-introduction>

3.2 Recommended Resource(s)

Soil ecology and management. 1st Edition. (2009). Joann Whalen and Luis Sampedro, CABI. (Textbook)

4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. On completion of this course students will be able to:

1. Understand terms associated with the soil microbial environment.
2. Identify types and interactions of organisms in the soil food web.

3. Interpret and integrate modern concepts about soil microorganisms and nutrient cycles.

4. Understand the importance of soil microbial communities to environmental sustainability and function.

5 Teaching and Learning Activities

5.1 Lecture content

Module 1: Soil as a microbial environment Chapters 2, 8, 11

Soil habitat

Microbial distribution in soil

Rhizosphere

Module 2: Soil Biota Chapters 3, 4, 5

Introduction of main groups of microorganisms

RNA-based classification- three domains of life

Module 3: Soil Microbial Ecology

Chapter 10

Soil community structure

Module 4: Soil Biochemistry

Chapters 9, 12, 14, 15, 16

Microbial metabolism

Carbon cycling

Nitrogen cycling

Phosphorus transformations

6 Assessments

6.1 Marking Schemes & Distributions

Assessment Details :

Meet the soil microbe presentation

Learning Outcome(s): 2, 3, 4

Soil microbe in the news

Learning Outcome(s): 2, 3, 4

Quiz 1

Learning Outcome(s): 1, 2

Quiz 2

Learning Outcome(s): 1, 2, 3

Quiz 3

Learning Outcome(s): 1, 2, 3

Quiz 4

Learning Outcome(s): 1, 2, 3, 4

Quiz 5

Learning Outcome(s): 1, 2, 3, 4

6.2 Assessment Details

Quiz 1 (10%)

Date: Thu, Jan 17, In class

Quiz 2 (10%)

Date: Thu, Jan 31, In class

Quiz 3 (10%)

Date: Thu, Feb 14, In class

Quiz 4 (10%)

Date: Thu, Mar 7, In class

Quiz 5 (10%)

Date: Thu, Mar 21

Meet the soil microbe (15%)

Date: Thu, Jan 24

Microbe in the news (15%)

Date: Thu, Jan 24

Soil organism major paper (20%)

Date: Tue, Apr 2

7 University Statements

7.1 Email Communication

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

7.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

7.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for course registration are available in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

7.4 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.

7.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

More information can be found on the SAS website

<https://www.uoguelph.ca/sas>

7.6 Academic Integrity

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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

7.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

7.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>