1 Course Details

1.1 Calendar Description

This course consists of the same lectures and seminars as (ENVS*4090 or SOIL*4090), but with an additional laboratory. The laboratory portion will focus on the regulatory requirements as stated under the Nutrient Management Act, 2001. Students will discuss nutrient management issues and gain practical experience using the NMAN software program.

Pre-Requisites: 1 of AGR*2301/2, AGR*2320, ENVS*2060, SOIL*2010
Equates: SOIL*4130
Restrictions: ENVM*1070. (ENVS*4090 or SOIL*4090).

1.2 Course Description

Soil management / nutrient management are lecture-tutorial based courses on the practical aspects of soil management for crop production as they relate to the physical, chemical and biological properties of soils. The major emphasis is placed on soil fertility as related to field soil properties, fertilizer, lime and manure use, as well as soil and plant testing for mineral nutrients. Due regard is given to both economic and environmental aspects of soil management practices. The laboratory portion (Soil Nutrient Management course only) will focus on the regulatory requirements as stated under the Nutrient Management Act, 2001. Students will discuss nutrient management issues and gain practical experience using the NMAN software program. Although not part of the course requirements, students are required to write an exam scheduled with the Ontario Ministry of Agriculture Food and Rural Affairs for certification to develop nutrient management strategies/plans for farms under the Nutrient Management Act, 2001.

1.3 Timetable

Lectures: Virtual, Mon, Wed, Fri.  1:30 – 2:20
**Seminars:** (ENVS*4090 and ENVS*4160):

Virtual, Monday 11:30 – 12:20

Virtual, Wednesday 11:30 – 12:20

**Laboratories (ENVS*4160 only)**

Virtual, Friday 2:30 – 5:20

1.4 Final Exam

Wednesday December 16 at 11:30 - 1:20 Room TBA

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2 Instructional Support

2.1 Instructional Support Team

| Instructor: | John Lauzon          |
| Email:      | lauzonj@uoguelph.ca  |
| Telephone:  | +1-519-824-4120 x52459 |
| Office:     | ALEX 219             |
| Office Hours: | by Appointment      |

During the course, your instructor will interact with you on various course matters on the course website using the following ways of communication:
• **Announcements:** The instructor will use Announcements on the Course Home page to provide you with course reminders and updates. Please check this section frequently for course updates from your instructor.

• **Ask Your Instructor Discussion:** Use this discussion forum to ask questions of your instructor about content or course-related issues with which you are unfamiliar. If you encounter difficulties, the instructor is here to help you. Please post general course-related questions to the discussion forum so that all students have an opportunity to review the response. To access this discussion forum, select Discussions from the Tools dropdown menu.

• **Email:** If you have specific questions, a conflict that prevents you from completing course requirements, or have a question concerning a personal matter, you can send your instructor a private message by email. The instructor will attempt to respond to your email within 24 hours.

• **Video Call:** If you have a complex question you would like to discuss with your instructor, you may book a video meeting on Teams or webex. Video meetings depend on the availability and are booked on a first come first served basis.

## 2.2 Teaching Assistants

<table>
<thead>
<tr>
<th>Teaching Assistant</th>
<th>Email:</th>
<th>Office:</th>
<th>Office Hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sowthini Vijayakumar</td>
<td><a href="mailto:sowthini@uoguelph.ca">sowthini@uoguelph.ca</a></td>
<td>ALEX 256</td>
<td>By appointment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching Assistant</th>
<th>Email:</th>
<th>Telephone:</th>
<th>Office:</th>
<th>Office Hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Thornbush</td>
<td><a href="mailto:xzhang20@uoguelph.ca">xzhang20@uoguelph.ca</a></td>
<td>519 824-4120 ext. 56203</td>
<td>ALEX room 333</td>
<td>By appointment</td>
</tr>
</tbody>
</table>

## 2.3 Lab instructor for ENVS*4160

Instructor Name: Dale McComb

Instructor Email: dale.mccomb@ontario.ca

Office location and office hours: By appointment

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## 3 Learning Resources

### 3.1 Required Resources
Course Technologies and Technical Support (Other)

System and Software Requirements

This course will use a variety of technologies including;

- CourseLink (main classroom)
- Webex
- Zoom
- Teams (via Office 365)

To help ensure you have the best learning experience possible, please review the list of system and software requirements.

https://opened.uoguelph.ca/student-resources/system-and-software-requirements

CourseLink System Requirements
You are responsible for ensuring that your computer system meets the necessary system requirements. Use the browser check tool to ensure your browser settings are compatible and up to date. (Results will be displayed in a new browser window).

http://spaces.uoguelph.ca/ed/system-requirements/
https://courselink.uoguelph.ca/d2l/systemCheck

CourseLink

This course is being offered using CourseLink (powered by D2L's Brightspace), the University of Guelph's online learning management system (LMS). By using this service, you agree to comply with the University of Guelph's Access and Privacy Guidelines. Please visit the D2L website to review the Brightspace privacy statement and Brightspace Learning Environment web accessibility standards.

http://www.uoguelph.ca/web/privacy/ https://www.d2l.com/legal/privacy/
https://www.d2l.com/accessibility/standards/

Technical Support

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support.
Email: courselink@uoguelph.ca

Tel: 519-824-4120 ext. 56939 Toll-Free (CAN/USA): 1-866-275-1478

Support Hours (Eastern Time):

Monday thru Friday: 8:30 am–8:30 pm

Saturday: 10:00 am–4:00 pm

Sunday: 12:00 pm–6:00 pm

Zoom
This course will use Zoom for lectures. Check your system requirements to ensure you will be able to participate.

https://opened.uoguelph.ca/student-resources/system-and-software-requirements

3.2 Recommended Resources

**Soil fertility handbook (Textbook)**

**Soil Fertility and Fertilizers (Textbook)**

3.3 Additional Reading


3.3 Other Resources:
The lecture slide sets and seminar assignments and resources will be available on courselink.

4 Learning Outcomes

4.1 Course Learning Outcomes
By the end of this course, you should be able to:

1. Understand and describe how plant nutrients reach the root surface
2. Understand and describe biological, chemical and physical processes involved in the cycling of soil organic matter.
3. Understand and describe the biological, chemical and physical processes involved in the cycling in soil systems, plant availability and loss of most required plant nutrients
4. Describe the fates and potential impacts of plant nutrients that leave the soil root zone
5. Understand the nature and management of animal manures
6. Understand the behavior and management of fertilizers in the soil/plant environment
7. Understand the impacts pH on the soil/plant environment
8. Understand the nature and management of water in agricultural systems
9. Apply the knowledge in outcomes 1 – 8 to develop soil management options which minimize unwanted environmental impacts and enhance the conditions for plant growth
10. Understand and implement regulations and protocols within the nutrient management act (ENVS*4160 only)
11. Work effectively in groups
12. Improved written communication skills
13. Improved ability to apply mathematical skills to quantify soil processes and/or define management.
14. Relate scientific principals covered in class to economics and management
15. Understand the policies and practices used in Ontario’s nutrient management act

5 Teaching and Learning Activities

5.1 Lecture

<table>
<thead>
<tr>
<th>Topics:</th>
<th>Roots and Nutrient Movement in the Soil to the Root</th>
</tr>
</thead>
<tbody>
<tr>
<td>References:</td>
<td>Barber pp. 90 - 106, Pub. 611 pp 41 – 51</td>
</tr>
<tr>
<td>Topics:</td>
<td>Soil Organic Matter</td>
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<tr>
<td>References:</td>
<td>Brady chapter 12, Paul chapter 7</td>
</tr>
<tr>
<td>Topics:</td>
<td>Soil Nitrogen</td>
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<tr>
<td>References:</td>
<td>Havlin chapter 4, Follett chapter 2, Pub 611 pp 51-56, 118-124</td>
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<tr>
<td>Topics:</td>
<td>Soil Phosphorus</td>
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<tr>
<td>References:</td>
<td>Havlin chapter 5, Follett chapter 3, Pub 611 pp 56 – 60</td>
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<tr>
<td>Topics:</td>
<td>Soil Pottasium</td>
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<tr>
<td>References:</td>
<td>Havlin chapter 6, Follett chapter. 4, Pub 611 pp 60 – 63</td>
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</tbody>
</table>
5.2 Seminar

Topics: Land Capability

Topics: Soil organic matter dynamics

Topics: Nitrogen Management

Topics: Irrigation

Topics: Drainage

Topics: Liming and soil pH

Topics: Manure Management

5.3 Lab

Topics: Ontario nutrient management act
The lab portion of ENVS*4160 will focus on the Ontario nutrient management act. Specific information will be given as a separate handout.

5.4 Seminar Dates

Note that not all seminar sessions are required. Please see courselink for seminar assignments and seminar dates.
Dropbox Submissions

Assignments should be submitted electronically via the online Dropbox tool. When submitting your assignments using the Dropbox tool, do not leave the page until your assignment has successfully uploaded. To verify that your submission was complete, you can view the submission history immediately after the upload to see which files uploaded successfully. The system will also email you a receipt. Save this email receipt as proof of submission.

Be sure to keep a back-up copy of all of your assignments in the event that they are lost in transition. In order to avoid any last-minute computer problems, your instructor strongly recommend you save your assignments to a cloud-based file storage (e.g., OneDrive), or send to your email account, so that should something happen to your computer, the assignment could still be submitted on time or re-submitted.

It is your responsibility to submit your assignments on time as specified on the Schedule. Be sure to check the technical requirements and make sure you have the proper computer, that you have a supported browser, and that you have reliable Internet access. Remember that technical difficulty is not an excuse not to turn in your assignment on time. Don’t wait until the last minute as you may get behind in your work.

If, for some reason, you have a technical difficulty when submitting your assignment electronically, please contact your instructor or CourseLink Support.

http://spaces.uoguelph.ca/ed/contact-us/

5.5 Access to Readings:

The readings can be found on reserve at the library or on courslink. Complete bibliographic information is given in the section on course material.

Library Access

As a student, you have access to the University of Guelph’s library collection, including both physical and electronic materials. For information on checking out or couriering physical
library items, accessing electronic journals and returning items to the library, visit the library’s website.

If you are studying off campus and would like to access the library’s electronic resources, use the Off Campus Login and login using your Single Sign On credentials or using your last name and library barcode.

https://www.lib.uoguelph.ca/

https://www.lib.uoguelph.ca/campus-login

6 Assessments

6.1 Marking Schemes & Distributions

Unofficial assessment marks will be available in the Grades tool of the course website.

Your instructor will attempt to have grades posted online within 2 weeks of the submission deadline, if the assignment was submitted on time. Once your assignments are marked you can view your grades on the course website by selecting Grades from the Tools dropdown menu on the navbar. Your course will remain open to you for seven days following the last day of the final exam period.

University of Guelph students can access their final grade by logging into WebAdvisor (using your U of G central ID).

https://webadvisor.uoguelph.ca
<table>
<thead>
<tr>
<th>Name</th>
<th>Scheme A (%)</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>Seminar assignments</td>
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<tr>
<td>Labs</td>
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<tr>
<td>Final Exam</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
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</tbody>
</table>

**6.2 Assessment Details**

**Midterm Exam (20%)**
- **Date:** Mon, Oct 26, TBA

**Seminar Assignments (25%)**
- **Due Date:** One week after assigning

**Labs (25%)**
- **Due Date:** TBA

**Final Exam (30%)**
- **Date:** Wed, Dec 4, 11:30 AM - 1:30 PM, TBA
- **Learning Outcomes Assessed:** 1 – 9 focus on 4 - 9

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**7 Course Statements**

**7.1 Grading Policies:**

All seminar assignments are due one week after assigning them. Assignments that are late without an acceptable explanation will receive a 10% grade penalty per week. **All assignments must be handed in by the final class day or a mark of zero will be assigned.**

**7.2 Course Policy on Group Work:**

The seminar assignments will be completed and submitted in groups. It is the responsibility of the group to ensure all members are contributing.

**7.3 Course Policy regarding use of electronic devices and recording of lectures:**

*Default text: 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.*
8 University Statements

8.1 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.

8.2 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

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions
https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic 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

Associate Diploma Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml

8.4 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.
8.5 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.

For Guelph students, information can be found on the SAS website https://www.uoguelph.ca/sas

For Ridgetown students, information can be found on the Ridgetown SAS website https://www.ridgetownc.com/services/accessibilityservices.cfm

8.6 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

8.7 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.

8.8 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

8.9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website (https://news.uoguelph.ca/2019-novel-coronavirus-information/) and circulated by email.

8.10 Illness

The University will not require verification of illness (doctor’s notes) for the fall 2020 or winter 2021 semesters.