

**The University of Manitoba  
Faculty of Agricultural and Food Sciences**



**COURSE TITLE** Principles of Scientific Research and Communication

<b>Department</b>	Soil Science	<b>Course Number</b>	SOIL7220
<b>Academic Session</b>	Winter 2021	<b>Credit Hours</b>	3
<b>Classroom Location</b>	Virtual (instructor will provide link)		
<b>Meeting Days and Class Hours</b>	TTh 1130 - 1245		
<b>Department Office location</b>	Ellis 362	<b>Phone Number</b>	474-8153

**Instructor Information**

**Course coordinator:** Dr. Francis Zvomuya [Francis.Zvomuya@umanitoba.ca] 204 474-9932  
**Instructors:** Dr. Inoka Amarakoon [Inoka.Amarakoon@umanitoba.ca]  
Dr. Chantal Bassett [Chantal.Bassett@umanitoba.ca]  
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Dr. Xiaopeng Gao [Xiaopeng.Gao@umanitoba.ca]

**Course Philosophy**

**Students' Learning Responsibilities**

Students are required to attend all lectures in a given unit and therefore each lecture offered in the course is mandatory. Students are responsible to actively participate in each unit.

**Why this course is useful?**

This course prepares graduate students for activities during their graduate degree and beyond.

**Who should take this course?**

Graduate students in the Department of Soil Science. This is a mandatory course for all M.Sc. graduate students and a required course for some of the Ph.D. students in the Department of Soil Science.

**Course Description/Objectives**

**Calendar Description**

Principles of scientific research; management skills; writing skills; oral and poster presentation; preparation of research proposal and thesis (pass/fail). These topics will focus on aspects of soil science and will give students experience in writing and presenting scientific material to increase their professionalism as soil scientists. Prerequisite: Consent of instructor.

**Instructional Methods**

Lectures, discussions, practice in writing, poster production and oral presentations.

**Course Objectives**

The objectives of SOIL7220 are to provide students with the scientific principles, critical thinking and ability to express ideas; to improve written and verbal skills; to impart ethical and respectful work attitudes and to gain experience in writing and presenting scientific material to increase their professionalism as soil scientists.

## **Learning outcomes**

Upon completion of the course, the student should:

- Fully understand ethical scientific behavior,
- Fully understand the importance of respectful behavior in a workplace with diversity of personnel
- Fully understand plagiarism and other forms of academic dishonesty related to the University and all aspects of scientific endeavor,
- Understand the requirements of writing a thesis research proposal and their thesis to fully satisfy Departmental requirements,
- Have a good working knowledge of how to write a scientific paper and a funding proposal, and to understand the scientific publishing process
- Be able to plan their thesis and other projects using time management tools,
- Be able to make and present a good poster at a scientific conference,
- Be able to answer questions concerning their scientific presentations confidently,
- Be able to give a good oral presentation on a scientific subject using visual aids.

## **Assignment Due Dates**

As given by each instructor in class.

## **Grade Evaluation**

In some cases, there will be written and/or oral exercises. Each course unit will be assigned a pass/fail grade by the instructor involved. Each instructor will clearly explain in his/her first or only lecture what entitles a pass or fail in his/her lecture unit. Students will need to pass EACH unit in order to earn a PASS in the ENTIRE course.

## **Important Dates (e.g., voluntary withdrawal date)**

First Class Date: January 7, 2020

February 17 - 21 Mid-term break: No classes

Voluntary withdrawal date: March 18, 2020

Last Class Date: Mar 26, 2020 (might vary depending on number of students in the course)

## **Texts, Readings, Materials**

### **Textbook(s) – Authors, Titles, Edition**

Note that no particular textbook is prescribed for this course. However, a range of course materials may be distributed or discussed in class. Please read these materials at home. These materials will help you to better understand the lectures and the in-class discussions. In some cases, they will also help you to complete your assignments.

## **Course Policies**

**Late Assignments:** Set by each instructor.

**Missed Assignments:** Set by each instructor.

**Missed Exams:** No exams.

### **Academic Integrity**

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty. Students should acquaint themselves with the University's policy on academic integrity (<http://umanitoba.ca/academicintegrity/>).

**Group Work Policies:** Set by each instructor in class.

## Course Content

**Lectures:** Lectures are to be held virtually (link to be provided) on Tuesday and Thursday from 11:30 to 12:45 pm from January 19 to Mar 25, 2020, as shown below.

<b>Date</b>	<b>Lectures</b>	<b>Instructor</b>
Jan 19	How to be a successful student: Introduction	Zvomuya
Jan 21	How to be a successful student: EDI training – workplace climate, culture & dimensions awards	Farenhorst
Jan 26	Research and Professional Ethics	Tenuta
Jan 28	Scientific Research Principles (readings)	Zvomuya
Jan 21	Scientific Research Principles (assignment)	Zvomuya
Feb 2	Thesis Proposal and Outline	Xiaopeng
<b>Feb 4</b>	<b>No class</b>	<b>MSSS</b>
Feb 9	Project Management	Xiaopeng
Feb 11	Poster Presentations 1	Bullock
<b>Feb 15-19</b>	<b>Midterm Break - No classes</b>	
Feb 23	Media and Job Interviews	Tenuta
Feb 25	Poster Presentations 2	Bullock
Mar 2	Poster Presentations 3	Bullock
Mar 4	Writing Scientific Articles 1	Lobb
Mar 9	Writing Research Funding Proposals	Bassett
Mar 11	Writing Scientific Articles 2	Lobb
Mar 16	Oral Presentations 1	Amarakoon
Mar 18	Oral Presentations 2	Amarakoon
Mar 23	Oral Presentations 3	Amarakoon
Mar 25	Seminars	Xiaopeng

### **Some topics discussed in each unit are as follows:**

*How to be a successful student:* expectations and hints for your programs; equity, diversity and inclusiveness; respect

*Scientific principles and ethics:* scientific philosophy, ethics and science, critical thinking and evaluation, and research observations and recording.

*Poster presentations:* techniques for preparing and delivering an effective poster presentation, poster critique, preparation of a poster.

*Project Management:* managing time, managing projects, and tracking and charting progress in projects (eg. completing your graduate program on time).

*Thesis Proposal and Outline:* organization, content, format and presentation of your thesis to follow our guidelines.

*Writing Scientific Articles:* writing a manuscript, techniques, formats, audience.

*Writing Research Funding Proposals:* writing proposals to attract funding.

*Interviews:* addressing questions at a conference or thesis defense, or when being interviewed by the media or potential employers.

*Oral presentations and seminars:* preparing and delivering an effective oral presentation, using software for oral presentations, chairing and conduct of presentations, in-class practice presentations.