



COURSE TITLE Principles of Scientific Research and Communication

Department	Soil Science	Course Number	SOIL7220
Academic Session	Winter 2022	Credit Hours	3
Classroom Location	Virtual		
Meeting Days and Class Hours	TTh 1130 - 1245		
Department Office location	Ellis 362	Phone Number:	204-474-8153

Instructor Information

Course coordinator: Dr. Francis Zvomuya (Francis.Zvomuya@umanitoba.ca, 204 474-9932)
Instructors: Dr. Inoka Amarakoon (Inoka.Amarakoon@umanitoba.ca)
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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

First Class Date: February 1, 2022

Mid-term break: Feb 22. No classes

Voluntary withdrawal date: TBD

Last day of class Date: April 20 (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 February 1 to April 7, as shown below.

Date	Lectures	Instructor
Feb 1	How to be a successful student: Introduction	Zvomuya
Feb 3	MSSS – No class	
Feb 8	How to be a successful student: EDI training – workplace climate, culture & dimensions awards	Farenhorst
Feb 10	Research and Professional Ethics	Tenuta
Feb 15	Scientific Research Principles (readings)	Zvomuya
Feb 17	Scientific Research Principles (assignment)	Zvomuya
Feb 22	Midterm Break - No class	
Feb 24	Thesis Proposal and Outline	Xiaopeng
March 1	Project Management	Xiaopeng
March 3	Poster Presentations 1	Badreldin
March 8	Media and Job Interviews	Tenuta
March 10	Poster Presentations 2	Badreldin
Mar 15	Poster Presentations 3	Badreldin
Mar 17	Writing Research Funding Proposals	Bassett
Mar 22	Writing Scientific Articles 1	Lobb
Mar 24	Writing Scientific Articles 2	Lobb
Mar 29	Oral Presentations 1	Amarakoon
Mar 31	Oral Presentations 2	Amarakoon
Apr 5	Oral Presentations 3	Amarakoon
Apr 7	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.