UM | Faculty of Agricultural and Food Sciences

COURSE TITLE Principles of Scientific Research and Communication

Department	Soil Science	**Course Number**	SOIL7220
Academic Session	Winter 2024	**Credit Hours**	3
Classroom Location	344 Ellis Building	**Pre-requisites**	Enrollment in Soil M.Sc. or Ph.D.
Meeting Days and Class Hours	T&Th 11:30 – 12:45		
Department Office location	Ellis 362	**Office Phone**	204-474-8153

Traditional Territories Acknowledgement

The soil of Manitoba has sustained indigenous peoples and is firmly rooted in their cultures, identities and histories for millennia. It is thus to acknowledge that the University of Manitoba campuses are located on the original lands of the Anishinaabeg, Cree, Ojibwe-Cree, Dakota and Dene peoples and on the National Homeland of the Red River Métis. We respect the Treaties that were made on these territories, we acknowledge the harms and mistakes of the past, and we dedicate ourselves to moving forward in partnership with Indigenous communities in a spirit of Reconciliation and collaboration.

Instructor Information

Course coordinator: Dr. Mario Tenuta (he/him)
mario.tenuta@umanitoba.ca, 204-290-7827
Office: Room 360, please come by, door is usually open if present
Please address simply as Mario

Instructors:
Dr. Inoka Amarakoon (Inoka.Amarakoon@umanitoba.ca)
Dr. Chantal Bassett (Chantal.Bassett@umanitoba.ca)
Dr. Nasem Badreldin (Nasem.Badreldin@umanitoba.ca)
Dr. Henrique Da Ros Carvalho (Henrique.Carvalho@umanitoba.ca)
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Dr. David Lobb (David.Lobb@umanitoba.ca)
Dr. Afua Mante (Afua.Mante@umanitoba.ca)

Equity, Inclusion and Non-oppression Commitment

Mario and instructors commit to SOIL 7220 being equitable, embracing diversity, encouraging inclusion, and being intolerant of oppression and disrespect. We support students by removing barriers to learning and connecting students with needed support.

General

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 and complete each unit.

Why is this Useful?
This course provides academic and professional development to prepare graduate students for their graduate programs and careers.

Who Should Take it?
Graduate students in the Department of Soil Science. This course must be taken by all M.Sc. students and Ph.D. students in Soil Science that have not taken it before.

Course Description/Overview

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, reading assignments, 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 behaviour
- Fully understand the importance of respectful behaviour 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
- Know how to recognize implicit bias in a learning or workplace environment
- 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 craft an effective job application and prepare for a job interview
- 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.

Assignments and Due Dates
Assignment instructions, grading and due dates will be provided by the class instructor.

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: January 9, 2024
Winter Term break: February 19 – 23 (No classes)
Voluntary withdrawal date: March 20
Last day of class: March 21 (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. If the material is distributed before a class please understand them ahead of time. 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: Implications set by each instructor.

Missed Assignments: Implications set by each instructor.

Attendance: In-person participation is expected for all classes. We understand circumstances arise preventing attending a class. Please discuss attendance issues with the instructor as far as possible ahead of time.

Missed Exams: No exams, so nothing to miss.

Group Work Policies: Set by each instructor in class.

Rudeness/Disrespect/Bias/Prejudice: Not tolerated.

Academic Integrity & Artificial Intelligence

The Department of Soil Science takes academic integrity seriously. We are committed to the university's definition of academic integrity as a commitment to six fundamental values: honesty, trust, fairness, respect, responsibility, and courage. Most instances of academic dishonesty are accidental. Students make mistakes because they don't understand the rules. This section covers the six most common types of academic dishonesty and how to avoid them.

Artificial Intelligence: Artificial intelligence could fall into any of the following types of tools: editing software (i.e., Grammarly), paraphrasing generators (i.e., Quillbot), Text generators (i.e., Chat GPT), Image generators (i.e., DALL-E), and predictive text (i.e., suggestions in Outlook). These are tools that generate text, video or images based on questions, phrases, or keywords that you provide. If your instructor asks you to complete your work independently, AI would be viewed as academic misconduct/cheating. But if you are asked to use AI technology to complete an assignment, in part or in full, it may be permitted. If permitted to use AI technology, it must be acknowledged. Wording such as the following is to be used, "Tthe author generated this [text or image] in part with [insert technology], a language- or image-generation model. Upon generating the draft, the author reviewed, edited, and revised it to their own liking and takes ultimate responsibility for the content of this [insert assignment name]."

Plagiarism: Examples of plagiarism include copying the text of someone else, taking credit for someone else's ideas, rewriting without citing, copying images, graphs, tables or diagrams without permission, presenting an unreferenced idea, incorrect citations or references, incomplete bibliography or reference list or self-plagiarism.

Inappropriate Collaboration: At the University of Manitoba, inappropriate collaboration occurs, "when a student and any other unauthorized person work together on assignments, projects, tests, labs or other work intended to be individual." Learning how to work with other people is a big part of your university education, but so is learning to work by yourself. While it might be obvious you shouldn't work with a partner on some assignments, there are other situations where the line between appropriate and inappropriate collaboration can seem fuzzy. Other terms for inappropriate collaboration include unauthorized assistance, collusion, unequal group or team contribution.

Duplicate Submission: UM considers duplicate submission as, "cheating where a student submits a paper, assignment or test in full or in part, for more than one course without the permission of the course instructor." The university expects you to do new and original work for each class instead of re-using a previously submitted paper. If you are writing similar papers, have overlap between them, or need to build on a point you've made before, you need to first ask your professor, and then cite yourself. Other terms for duplicate submission include: self-plagiarism, copying yourself.

Personation: UM defines personation as, "the writing of an assignment, lab, test, or examination for another student, or the unauthorized use of another person's signature or identification in order to impersonate someone else. Personation includes both the personator and the person initiating the personation." Personation is straightforward. If you do something in place of another student, or another student does something in place of you, both of you have committed personation. Other terms for personation include writing a paper or assignment or lab for another student and forging signatures or names on class attendance records.

Academic Fraud: The University of Manitoba defines academic fraud as, "falsification of data or official documents as well as the falsification of medical or compassionate circumstances/documentation to gain accommodations to complete assignments, tests or examinations." Sometimes you don't get the results you were expecting. You might be tempted to change data or results slightly, especially if it seems like a minor detail. But if everyone changed their results just a bit when it came to their work, how could we trust any research? Academic fraud has big implications, not just for you, but for everyone else. Other names for academic fraud include falsification, fabrication, scientific fraud, making up data, changing data, misrepresenting ideas, submitting made-up data, application fraud and forged documentation.

It is the responsibility of all students to be familiar with the University's policy on Academic Integrity (https://umanitoba.ca/student-supports/academic-supports/academic-integrity) and Student Discipline Bylaw and Procedure (https://catalog.umanitoba.ca/graduate-studies/university-policies-procedures/student-discipline-bylaw/).

Accessibility

The Department of Soil Science is committed to providing an accessible academic community. Students Accessibility Services (SAS) (https://umanitoba.ca/student-supports/accessibility) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.

520 University Centre
(204) 474-7423
Student_accessibility@umanitoba.ca

Academic Supports

Academic Learning Centre: The Academic Learning Centre serves graduate and undergraduate, full and part-time students at UM. Make an appointment with a writing or study-skills tutor or sign up for one of our many workshops, all at no charge. https://umanitoba.ca/student-supports/academic-supports/academic-learning

UM Libraries: https://umanitoba.ca/libraries/

Student Counselling Centre: The Student Counselling Centre (SCC) provides free counselling and mental health support to University of Manitoba, English Language Centre, and International College of Manitoba (ICM) students. We are open year-round, Monday through Friday from 8:30 am to 4:30 pm. Our commitment is to offer a support service to every student who contacts us. https://umanitoba.ca/student-supports/student-health-and-wellness/student-counselling-centre-scc

University Health Services: The University of Manitoba has two health clinics that provide the effective, patient-centered, collaborative, multidisciplinary primary care required for the success and well-being of UM students. https://umanitoba.ca/student-supports/health-wellness/university-health-service

University Copyright Office: They support faculty, staff, and students in the use and creation of copyright protected materials in their teaching, research, and studies. They also monitor the university's compliance with copyright rules, encourage appropriate practices and engage in policy development and dissemination. The most important work they do is answer your questions. Take the guesswork out of copyright by contacting them. https://umanitoba.ca/copyright/

Grade Appeals: If you disagree with a grade you've received, first talk to coordinator. You can also file a formal appeal about your grades. https://umanitoba.ca/registrar/grades/appeal-grade

Student Advocacy: Student Advocacy is a safe place for students. They help students navigate university processes and advocate for their rights as a student at UM. https://umanitoba.ca/student-supports/academic-supports/student-advocacy

Respectful Work and Learning Environment (RWLE) Policy: The Department of Soil Science wishes to promote and support a community which embraces diversity and inclusion, provides for equality of opportunity, and recognizes the dignity of all people. For further resources please see https://umanitoba.ca/about-um/respectful-work-and-learning-environment-policy

Sexual Assault: Sexual violence affects people of all ages, sexual orientations, genders, gender identities, abilities and relationship statuses. The Department of Soil Science is committed to ensuring a respectful work and learning environment and a safe and inclusive campus community where survivors of sexual violence receive the supports they need to succeed both academically and personally. For resources please see https://umanitoba.ca/sexual-violence

Intellectual Property: The Partnerships and Innovation office helps uncover the full potential of research by considering options to move advances into practice in the community. This includes evaluation and protection of Intellectual Property (IP), identifying partners for commercialization, and licensing IP. https://umanitoba.ca/partnerships-and-innovation/innovation-development

UM Safe: The University of Manitoba has transportation safety programs help ensure your safety when travelling to, from and around our campuses. More, see https://umanitoba.ca/security/um-safe

UM Safe App: The Department of Soil Science recommends all students download the UM Safe App. More, see https://news.umanitoba.ca/mobile-safety-app-launched/

Course Content

Lectures: Lectures are to be held in person on Tuesday and Thursday from 11:30 to 12:45 pm from January 9 to March 21, as shown below. Any variation and you will be notified by email by the coordinator or instructors.

Date	Lectures	Instructor
Jan 9	How to be a successful student: Introduction	Tenuta
Jan 11	Scientific Research Principles 1	Tenuta
Jan 16	Scientific Research Principles 2	Tenuta
Jan 18	Scientific Research Principles 3	Tenuta
Jan 23	Equity, Diversity, Inclusion and Bias 1	Mante
Jan 25	Equity, Diversity, Inclusion and Bias 2	Mante
Feb 1-2	**MSSS meetings – no class this week**	
Feb 6	Thesis Proposal and Outline	Gao
Feb 8	Poster Presentations 1	Badreldin
Feb 13	Job applications	Tenuta
Feb 15	Poster Presentations 2	Badreldin
Feb 19-23	**Midterm Break - No class this week**	
Feb 27	Poster Presentations 3	Badreldin
Feb 29	Writing Research Funding Proposals	Bassett
Mar 5	Writing Scientific Articles 1	Lobb
Mar 7	Writing Scientific Articles 2	Lobb
Mar 12	Oral Presentations 1	Carvalho
Mar 14	Oral Presentations 2	Carvalho
Mar 19	Project Management	Gao
Mar 21	Job Interviews and Media Relations	Tenuta

Some topics discussed in each unit are as follows:

How to be a successful student: expectations and hints for your programs

EDI: equity, diversity and inclusiveness; respect

Implicit Bias: prejudices, judgments, attitudes

Scientific Principles and Ethics: scientific philosophy, ethics and science, critical thinking and evaluation, scientific method 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.

Job Applications: presenting your best you to employers

Professional Agrologist: what's a P.Ag.?