

Syllabus

PLNT 3540: Weed Science
(Winter 2024)

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COURSE DETAILS

Course Title & Number: Weed Science PLNT 3540

Number of Credit Hours: 3 Credit Hours

Class Times & Days of Week: 10:00-11.15 T,R

Location for classes/labs/tutorials: Classes -J.H Ellis 245
Labs- Agriculture 138

Pre-Requisites:

Instructor Contact Information

Instructor(s) Name & Preferred Form of Address: Dr. Dilshan Benaragama
Dilshan

Office Location: 317 Plant Science, Agriculture Building

Office Hours or Availability: After lectures, I will be available for 15 minutes to answer any questions. If this is not suitable, please contact me via e-mail to set up an appointment.

Office Phone No. 204-474-6940

Email: Lecture and course enquiries:
Dilshan Benaragama: dilshan.benaragama@umanitoba.ca

Lab inquiries:
Jonathan Rosset: Jonathan.Rosset@umanitoba.ca

Note: All email communication must conform to the [Communicating with Students](#) university policy.

Contact: Please feel free to contact the instructor or lab TA for any questions or concerns you may have. Every attempt will be made to respond to e-mails or calls within 2 business days. Response to e-mails and calls will be limited to regular office hours (M-F 8:30am -4:30pm).

Course Description

U of M Course Calendar Description

Identification, biology and ecology of weeds of agricultural importance in western Canada, including principles of cultural, mechanical, biological, and chemical management. Topics include weed interference, effects of rotational and management practices on weed species composition, herbicide selectivity and mechanisms of action, and emerging control strategies.

General Course Description

This course will enable student to gain theoretical aspects of weeds (evolution, biology and ecology) as well as practical approaches to manage weeds sustainably using both chemical and non-chemical approaches including some latest technological weed management strategies.

During the Winter 2024 semester, the course and lab will be offered live. It is highly recommended that you attend each live lecture and lab to collect iclicker marks. Lectures will not be recorded or be available outside of lecture time.

Skeleton notes of lecture material will be posted in UMLearn and can be accessed after the lectures (<https://universityofmanitoba.desire2learn.com/>).

Course Goals

The objectives of the course are for students to be able to:

- 1) Understand what is a weed and how they evolve.
- 2) Identify endemic and invasive weed species present in Manitoba.
- 3) Understand the ecological principles that govern plant species, plant communities and crop-weed interactions.
- 4) Understand weed management thresholds and the critical period for weed control.
- 5) Understand effective cultural, mechanical, biological, and chemical methods for managing weeds and when to apply those.
- 6) Understand the principles that contribute to herbicide selectivity.
- 7) Understand herbicide resistance and how to manage it.
- 8) Design integrated weed management systems and understand the trade-offs among weed management techniques.

Course Learning Objectives

At the end of this course, students will gain:

- 1) Theoretical knowledge about weeds, their biology and ecology
- 2) Technical knowledge about weed management
- 3) Critical thinking skills to evaluate weed management options within ecological, economic, and social constraints and to design effective integrated management systems

Textbook, Readings, and Course Materials

Reference books (supplementary)

Guide to Crop Protection (online)- <http://www.gov.mb.ca/agriculture/crops/index.html>

Liebman, M., Mohler, C. L., & Staver, C. P. (2001). *Ecological management of agricultural weeds*. Cambridge university press.

Monaco, T. J., Weller, S. C., & Ashton, F. M. (2002). *Weed science: principles and practices*. John Wiley & Sons. Robert Zimdahl, *Fundamentals of Weed Science*, 1999

L Hall, L., Beckie, H., & Wolf, T. (1999). *How Herbicides Work: Biology to Application*, Alberta Agriculture, Food, and Rural Development, Publishing Branch; 1st edition.

Above materials will help students to better understand the concepts and the materials discussed in the classroom. Any specific materials that are compulsory to read will be circulated during the course.

Using Copyrighted Material

Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and university guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn), or any website, unless an exception to the *Copyright Act* applies or written permission has been confirmed. For more information, see the University's Copyright Office website at <http://umanitoba.ca/copyright/> or contact um_copyright@umanitoba.ca.

Course Technology

Students must be able to access class material on UMLearn, must have a valid iclicker account, and must have computing resources and standard software (e.g., MS Excel, MS Word, MS PowerPoint) to process data, generate word documents and generate material for presentations. Access to UMLearn <https://universityofmanitoba.desire2learn.com/> and iclicker <https://www.iclicker.com/>.

Use of technology such as cell phones or computers in class and labs for purposes other than the course is not allowed.

Expectations: I Expect You To

- Attend class regularly. Lectures are held every Tuesday, Thursday 10:00am - 11:15am. Attendance is expected and iclicker marks depend on it.
- Attend each and every lab. Labs are held every Tuesday at 2:30pm unless indicated otherwise.
- Keep on schedule with the required readings and class material.
- Participate regularly in class, iclickers exercises and in the lab and participate in discussions.
- Contact me if you are unclear about some material in class or if you find an error in grading.

- Treat me and all your classmates with respect. See Respectful Work and Learning Environment Policy. This includes no texting or social media during class.
- Complete all lab reports, assignments, quizzes and exams individually unless otherwise indicated. (i) All assignments and lab projects are subject to the rules of academic dishonesty; (ii) For group work, group members must ensure that a group project adheres to the principles of academic integrity.
- Complete all quizzes and exams individually while adhering to U of M Academic Integrity policies.
- I expect you to follow all university policies on Class Communication, Academic Integrity and Covid.

Class Communication:

You are required to obtain and use your University of Manitoba email account for all communication between yourself and the university. All communication must comply with the Electronic Communication with Student Policy:

http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html.

Academic Integrity:

Each student in this course is expected to abide by the University of Manitoba [Academic Integrity principles](#). Always remember to reference the work of others that you have used. Also be advised that you are required to complete your assignments independently unless otherwise specified. If you are encouraged to work in a team, ensure that your project complies with the academic integrity regulations. You must do your own work during exams. Inappropriate collaborative behavior and violation of other Academic Integrity principles, will lead to the serious [disciplinary action](#). Visit the [Academic Calendar](#), [Student Advocacy](#), and [Academic Integrity](#) web pages for more information and support.

Refer to specific course requirements for academic integrity for individual and group work such as:

- I. Group projects are subject to the rules of academic dishonesty;
- II. Group members must ensure that a group project adheres to the principles of academic integrity;
- III. Students should also be made aware of any specific instructions concerning study groups and individual assignments;
- IV. The limits of collaboration on assignments should be defined as explicitly as possible; and
- V. All work should be completed independently unless otherwise specified.

Recording Class Lectures:

All course material is copyrighted by Dilshan Benaragama, 2023. No audio or video recording of this material, lectures, or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission of Dilshan Benaragama. Course materials (both paper, digital and the recorded classes and lab) are for the participant's private study and research, and must not be shared. Violation of these and other Academic Integrity principles, will lead to serious disciplinary action.

Student Accessibility Services:

The University of Manitoba is committed to providing an accessible academic community. [Students Accessibility Services \(SAS\)](#) 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.

Student Accessibility Services
520 University Centre
Phone: (204) 474-7423
Email: Student_accessibility@umanitoba.ca

Expectations: You Can Expect Me To

- Arrive before class and stay after class to answer any questions should they arise.
- Explain and provide examples of the topics listed below in the class schedule.
- Make sufficient time outside of class to meet with students to ensure the course material is clear.
- I will ask question in class. I expect students to make an effort to respond and join in on class discussions.
- Provide an unbiased grading scheme.
- Return all graded assignments and exams within 2 weeks of the due date.
- Do my best to help you succeed in PLNT 3540 and your degree.

CLASS SCHEDULE AND COURSE EVALUATION

This schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to [Section 2.8 of ROASS](#).

Topics covered during PLNT 3540 lecture:

1) Weed Evolution Biology and Ecology

- a) Weed characteristics, their evolution and their impact
- b) Weed life cycles and classification systems
- c) Weed seedbanks, recruitment, interference, reproduction, dispersal
- d) Weed community structure – factors that drive community composition and implications
- e) Invasions and naturalization

2) Weed Management

- a) Basic principles, scouting, thresholds, critical period of weed control
- b) Chemical weed management – herbicides, application technology, herbicide resistance
- c) Cultural weed management – the competitive balance, crop rotations, weed seed management
- d) Physical weed management – tillage, mowing, burning
- e) Biological weed management – various approaches
- f) Integrated weed management – ‘many little hammers’
- g) Advances in weed management – use of remote sensing technologies for weed management

Date	Class Content & Teaching Strategies	Required Readings or any Pre-class Preparation	Evaluation		
			Type of Assessment	Due Date	Value of Final Grade
All Term			Iclicker	In-class	10%
Feb 14			Mid-Term	In-class	15%
Early-March			Reading assignment	In-class	05%
TBA			Final Exam		30%
			Lab		40%
			Total		100%

***Iclicker** - Students are required to bring their iclicker to each class. For each question asked students will receive one point for answering the question and one point for answering correctly. The iclicker grade will be determined as the sum of all questions asked during lectures and weighted according to the points earned for each question. Students that have received at least 80% of the iclicker points will receive 100% of the total allocated mark, those with 70-79% of the points will receive 80% of the total allocated mark, those with 60-69% of the points will receive 60% of the total allocated mark, those with 50-59% of the points will receive 40% of the total allocated mark, and those with less than 50% of the iclicker points will receive a grade of 0. Students must register online at <https://www.iclicker.com/>

Lab Expectations

Students are expected to attend all labs. Plant material will be available in the greenhouse outside of the scheduled lab times. Students are expected to care for their experimental plants outside of normal lab hours. Working and communication policies in the lab are the same as outlined above for the lectures.

Lab Schedule

Date	Lab Content & Teaching Strategies	Required Readings or Pre-Class Preparations	Evaluation		
			Type of Assessment	Due Date	Value of Final Grade
27 th Feb			Mid-Term exam		10%
2 nd April			Lab Final exam		15%
TBA			Lab Report		15%

Lab Content

- 1) Weed identification (4-5 weeks)
- 2) Experiment / Data Set
- 3) Sprayer calibrations / Case studies and problem solving
- 4) Herbicide injury symptoms

Grading

Indicate your grading scale. A sample is given below that you can adjust to your course expectations.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	95-100	4.25-4.5	4.5
A	86-94	3.75-4.24	4.0
B+	80-85	3.25-3.74	3.5
B	72-79	2.75-3.24	3.0
C+	65-71	2.25-2.74	2.5
C	60-64	2.0-2.24	2.0
D	50-59	Less than 2.0	1.0
F	Less than 50		0

Voluntary Withdrawal

The Voluntary Withdrawal date is **March 22, 2023**. Students who do not drop the course by the deadline will be assigned a final grade. Withdrawal courses will be recorded on an official transcript. Refer to the [Registrar's Office](#) web page for more information. I am happy to discuss your progress and aid in your decision throughout this course

ASSIGNMENT DESCRIPTION

Assignment Feedback

Grades for all assignments and exams completed before the voluntary withdrawal date will be available before that date.

Grades for lab and other assignment due within the last two weeks of the term will be available as quickly as possible.

Assignment Extension and Late Submission Policy

Late assignments/reports will receive a grade reduction of 10% per day late. Missed assignments will receive a grade of zero.

UNIVERSITY SUPPORT OFFICES & POLICIES

Instructors shall provide to every student the information on university support offices and policies in [Schedule "A"](#) within the first week of classes, either through a paper copy and/or via the university's student information system (i.e., Aurora, UM Learn, or such other university information system as may be approved by the university from time to time).

Schedule "A"

Section (a) sample re: A list of academic supports available to Students, such as the Academic Learning Centre, Libraries, and other supports as may be appropriate:

Writing and Learning Support

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor's feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: <http://umanitoba.ca/student/academiclearning/>

You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 205 Tier Building.

University of Manitoba Libraries (UML)

As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians can be found by subject: <http://bit.ly/WcEbA1> or name: <http://bit.ly/1tJ0bB4>. In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the following: <http://bit.ly/1sXe6RA>. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries' homepage: www.umanitoba.ca/libraries.

Section (b) sample: re: A statement regarding mental health that includes referral information:

For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.

Student Counselling Centre

Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre:*

<http://umanitoba.ca/student/counselling/index.html>

474 University Centre or S207 Medical Services

(204) 474-8592

Student Support Case Management

Contact the Student Support Case Management team if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.

Student Support Intake Assistant <http://umanitoba.ca/student/case-manager/index.html>

520 University Centre

(204) 474-7423

University Health Service

Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.

University Health Service <http://umanitoba.ca/student/health/>

104 University Centre, Fort Garry Campus

(204) 474-8411 (Business hours or after hours/urgent calls)

Health and Wellness

Contact our Health and Wellness Educator if you are interested in [peer support from Healthy U](#) or information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.

Health and Wellness Educator <https://umanitoba.ca/student/health-wellness/welcome-about.html>

britt.harvey@umanitoba.ca

Live Well @ UofM

For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site:

<http://umanitoba.ca/student/livewell/index.html>

Section (c) sample: re: A notice with respect to copyright:

All students are required to respect copyright as per Canada's *Copyright Act*. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational

purposes with the rights of content creators from around the world. The Copyright Office provides copyright resources and support for all members of the University of Manitoba community. Visit <http://umanitoba.ca/copyright> for more information.

Section (d) sample: re: A statement directing the student to University and Unit policies, procedures, and supplemental information available on-line:

Your rights and responsibilities

As a student of the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The [Academic Calendar](http://umanitoba.ca/student/records/academiccalendar.html) <http://umanitoba.ca/student/records/academiccalendar.html> is one important source of information. View the sections *University Policies and Procedures* and *General Academic Regulations*.

While all of the information contained in these two sections is important, the following information is highlighted.

- If you have questions about your grades, talk to your instructor. There is a process for term work and final **grade appeals**. Note that you have the right to access your final examination scripts. See the Registrar's Office website for more information including appeal deadline dates and the appeal form <http://umanitoba.ca/registrar/>
- You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the **Academic Integrity** regulation. Consult the course syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support <http://umanitoba.ca/academicintegrity/> View the **Student Academic Misconduct** procedure for more information.
- The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected conduct yourself in an appropriate respectful manner. Policies governing behavior include the:

Respectful Work and Learning Environment

http://umanitoba.ca/admin/governance/governing_documents/community/230.html

Student Discipline

http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html and,

Violent or Threatening Behaviour

http://umanitoba.ca/admin/governance/governing_documents/community/669.html

- If you experience **Sexual Assault** or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The **Sexual Assault** policy may be found at:
http://umanitoba.ca/admin/governance/governing_documents/community/230.html
More information and resources can be found by reviewing the Sexual Assault site
<http://umanitoba.ca/student/sexual-assault/>
- For information about rights and responsibilities regarding **Intellectual Property** view the policy [https://umanitoba.ca/governance/sites/governance/files/2021-06/Intellectual_Property_Policy - 2013_10_01 RF.pdf](https://umanitoba.ca/governance/sites/governance/files/2021-06/Intellectual_Property_Policy_-_2013_10_01_RF.pdf)

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site

<http://umanitoba.ca/faculties/>

Contact an **Academic Advisor** within our faculty/college or school for questions about your academic program and regulations <http://umanitoba.ca/academic-advisors/>

Student Advocacy

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

<http://umanitoba.ca/student/advocacy/>

520 University Centre

204 474 7423

student_advocacy@umanitoba.ca