Syllabus

PLNT 0770: WEED MANAGEMENT

(Winter & 2023)
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COURSE DETAILS

Course Title & Number: Weed Management PLNT 0770

Number of Credit Hours: 4 Credit Hours

Class Times & Days of Week: Lecture 10.30 am-11.20 am MWF
Labs 2.30 -3.45 pm W, 11.30 am-12.45 pm R

Location for classes/labs/tutorials:
Agriculture 138 (Lecture)
Agriculture 343 (Lab)

Pre-Requisites: PLNT 0410, DAGR 0420

Instructor Contact Information

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

Office Location: 317 Plant Science Building

Office Hours or Availability: MWF 1.30 -3.00 pm or by appointment.

Office Phone No. 2044746940

Email: dilshan.benaragama@umanitoba.ca
Every attempt will be made to respond within 2-3 business days.

Contact: I would be available most of the time in my office during the term and please feel free to drop in and check at my office. However, it will be better to check in advance or have an appointment.
Course Description

U of M Course Calendar Description
PLNT 0770 Weed Management Cr.Hrs. 4. Covers economic importance of weed management, weed identification, weed biology and ecology, principles of cultural, biological and chemical weed control, introduction to herbicides and factors influencing their use and selectivity. Prerequisite: PLNT 0410, DAGR 0420.

General Course Description
This course will give the student the ability to identify the weeds and the biology of common weeds in the prairies. Identification and understanding weeds is an important first step in being able to manage weeds. The course will also provide students with the knowledge to use herbicides safely, effectively, and in conjunction with integrated weed management techniques to reduce the selection for and/or help with the management of herbicide-resistant weed biotypes as well as reduce the negative environmental effects. This will be useful for students that are returning to a farm or that are working as advisers, extension specialists, agronomists, or in other agricultural positions. This course will be useful to all students who see themselves involved in any part of the agricultural production sector.

General Course Information
Students are expected to attend lectures and lab classes. Course notes for lectures are made available through UMLearn at https://universityofmanitoba.desire2learn.com/.
Students are encouraged to participate in class and labs by asking questions or providing appropriate comments from their own experiences that will add to the learning of all students. Students are expected to complete assignments on time. Lectures are presented with the assistance of PowerPoint slides. On occasion, informal small groups will be used to discuss issues raised in class. Student questions and comments are encouraged. For students who have taken general crop production courses in PLNT 0420 and PLNT 0410, this course is an extension of these courses focusing on optimized crop production to manage weeds, maintain productivity and minimize the risk and impacts of herbicide resistance.

Course Goals
The student will learn how to prevent weeds from interfering with the intended use of the land. Students will learn how crop and variety selection, crop rotation or sequencing, farming systems, tillage systems, and environmental conditions affect weeds and weed management. Students will learn four major methods of managing weeds: cultural, biological, mechanical and chemical, and how to combine these into effective and sustainable weed management systems.

Course Learning Outcomes
By the end of this course, students should be able to identify different weed species and their basic biology and ecology, understand how different crop management practices effect their abundance and their management. Further, students will be able to learn four major methods of managing weeds:
cultural, biological, mechanical and chemical and how to combine these into effective and sustainable weed management systems.

Textbook, Readings and Course Materials

Textbook(s)
1. Guide to Crop Protection (online)
   http://www.gov.mb.ca/agriculture/crops/index.html

Reference books
Weeds of the Prairies, Alberta Agriculture and Rural Development
http://www.umanitoba.ca/academic_support/libraries/

Using Copyrighted Material
All students are required to respect copyright as per Canada’s Copyright Act. The Copyright Office (https://umanitoba.ca/copyright/) provides copyright resources and support for all members of the University of Manitoba community. 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 https://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca

Acknowledgment
Most of the course content including lecture notes was originally developed by Dr. Rob Gulden, Professor, Department of Plant Science, University of Manitoba and Dr. Steve Shirliffe, Professor, Department of Plant Sciences, University of Saskatchewan.
Library
The university of Manitoba Libraries provide the access to most material you required during the course. To get more specific information about using the library and accessing resources you can reach the particular library liaison at https://libguides.lib.umanitoba.ca/

Course Technology
It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical, and legal manner. The student can use all technology in the classroom setting only for educational purposes approved by the instructor and/or the University of Manitoba Student Accessibility Services. Students should not participate in personal direct electronic messaging/posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline “gaming” during scheduled class time. If a student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it. (©S Kondrashov. Used with permission). Class slides will be provided on UMLearn. Students need to ensure that they are familiar with the use of this software to access class notes, the course syllabus, assignments, and other important information regarding this course.

Expectations: I Expect You To
Students are expected to contribute to a respectful work and learning environment (refer to Respectful Work and Learning Environment Policy) https://umanitoba.ca/governance/sites/governance/files/2021-06/Respectful%20Work%20and%20Learning%20Environment%20Policy%20-%202020%20%2009%20%29.pdf. Disruptions including uninvited talking, gaming, use of technologies (including cell/smart phones) in class for purposes other than the course will not be tolerated. Students are expected to attend all lectures (see iclicker component below). Assignments are to be done individually unless otherwise indicated and all University of Manitoba policies on Academic Integrity must be adhered to. The instructor adds valuable and new information to augment the slides provided on UMLearn. Students are expected to take additional notes during class. All material presented in class and the lab including that NOT ON SLIDES is examinable.

Class Communication:
The University requires all students to activate an official University email account. You are required to obtain and use your U of M email account for all communication between yourself and the university. Please note that all communication between myself and you as a student must comply with the electronic communication with student policy. For full details of the Electronic Communication with Students and other policies please visit: https://umanitoba.ca/governance/sites/governance/files/2021-06/Electronic%20Communication%20with%20Students%20Policy%20-%20202013%20%2009%20%2041%20RF.pdf
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 serious disciplinary action. Plagiarism, a duplicate submission, cheating on quizzes, tests, and exams, inappropriate collaboration, academic fraud, and personation are violations of the Student Discipline Bylaw and will lead to serious disciplinary action. Visit the Academic Calendar, Student Advocacy, and Academic Integrity web pages for more information and support.

Recording Class Lectures:

No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without express permission from Dr. Dilshan Benaragama.

Student Accessibility Services:

If you are a student with a disability, please contact SAS for academic accommodation support 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 http://umanitoba.ca/student/saa/accessibility/, 520 University Centre 204 474 7423 Student_accessibility@umanitoba.ca Links to other available student services are provided in Schedule A which has been uploaded into this course on UMLearn.

Expectations: You Can Expect Me To

I will be using a variety of teaching methods that will be useful to engage you all during the course. You can expect me to answer your questions during the lecture (which I strongly encourage). You will be also encouraged to talk to me in person before and after the class for any clarification about the content or the general course-related information. If you need more time to discuss about any matter related to the course you can meet me in my office.
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 the ROASS Procedure.

1. Introduction to the course and the content
   Course description and marking scheme, the importance of weed management and the course, definitions of weeds, origin and evolution of weeds.

2. Biology and ecology of weeds
   Classification, life cycles, growth habits, reproduction, germination and dormancy of most common weeds in the prairies.

3. Weed-crop competition
   Competition for water, nutrients, light, factors affecting yield loss (time of weed emergence, weed density), weed management decision tools, and economic guides for crop protection.

4. Weed management strategies
   Chemical weed control- history of herbicides, herbicide development and registration, herbicide classification, mode of actions, herbicide formulation, factors affecting herbicide performance, environmental fate of herbicides

5. Herbicide resistance and their management
   Occurrence in western Canada and lessons from elsewhere
   http://www.weedscience.org
   Mechanism of resistance, predicting resistance, managing/avoiding resistance, herbicide-resistant crops.

6. Integrated Weed Management
   Cultural (shifting the competitive balance in favor of the crop) mechanical (tillage, clipping etc.) biological (broad spectrum, classical, and inundative approaches)

7. Advances in weed management
   Molecular approaches to weed management, remote sensing in weed detection and weed mapping, precision weed control

LAB EXPECTATIONS

Attendance and weekly assignments are compulsory as a failing grade in the lab component will result in failing grade in the course. Students are expected to be respectful and clearly follow the instructions provided by the TA.
Lab Content

1) Weed identification
2) Introduction to herbicides
3) Familiarization with the Guide to Crop Protection
4) Herbicide injury symptoms
5) Case study problem solving

COURSE EVALUATION

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Assessment Tool</th>
<th>Value of final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Class</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.30 am Wednesday, Feb 15, 2023</td>
<td>Mid-term</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes (throughout the term)</td>
<td>Iclicker</td>
<td>10%</td>
</tr>
<tr>
<td><strong>In Lab</strong></td>
<td>Participation/quizzes/assignments</td>
<td>20%</td>
</tr>
<tr>
<td>TBA</td>
<td>Final Lab Exam</td>
<td>20%</td>
</tr>
<tr>
<td>TBA</td>
<td>Final Exam</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

** students must receive a passing grade in the laboratory portion of this course to receive a passing grade in the course.

Iclicker - Students are required to bring their iclicker to each class. Students will be tested with questions (3-5) after each lecture topic. 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. If there are more Iclicker responses than actual students in class, I reserve the right to assign a grade of
zero to all students for that session. Students must register their iclicker online at http://www.iclicker.com/registration/

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**GRADING**

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

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

Students can voluntarily withdraw from the course before 22nd March 2023. For further details please refer to https://umanitoba.ca/registrar/important-dates-deadlines#winter-term-2023

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**Assignment Descriptions**

Details of the assignment will be provided during the course.

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**Assignment Feedback**

Grades for all assignments and exams completed before the voluntary withdrawal date will be available before that date. Lab assignment grades will be e-mailed to students shortly after all the lab sections have been completed.

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**Assignment Extension and Late Submission Policy**

All the assignments should be submitted on the assigned date and time. Any delay in submission will incur a late submission penalty of 20% for each day delayed.
UNIVERSITY SUPPORT OFFICES & POLICIES

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 counseling. Student Counselling Centre: http://umanitoba.ca/student/counselling/index.html
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.

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/](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](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:

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](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/](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/](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 to conduct yourself in an appropriately respectful manner. Policies governing behavior include the:

  **Respectful Work and Learning Environment**

  **Student Discipline**
  [http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html](http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html)

  **Violent or Threatening Behaviour**

- 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 support 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](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/](http://umanitoba.ca/student/sexual-assault/)

- For information about rights and responsibilities regarding Intellectual Property view the
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