University of Manitoba
Faculty of Agriculture and Food Science_______________
Department of __Plant Science_______________

PLNT 4270
PLANT DISEASE CONTROL
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SCHEDULE A: A LIST OF ACADEMIC SUPPORTS AVAILABLE TO STUDENTS................................................. ERROR! BOOKMARK NOT DEFINED.
Course Title & Number: Plant Disease Control- PLNT 4270  
CRN: 10933  
Number of Credit Hours: 03  

Class Times & Days of Week:  
Class- Monday, Wednesday, Friday 1.30 pm to 2.20 pm  
Lab-Tuesday 11.30 am to 12.45 pm  
Sep.9, 2020–Dec. 15, 2020  

Location for classes/labs/tutorials: Teaching online by Webex  

Teaching Assistant: James De Castro  
TA Email: decastr4@myumanitoba.ca  
Pre-Requisites: PLNT2500 (0r 039.250) or Consent of instructor  

Instructor(s) Name: Dr. Zhongwei Zou, Research Associate  
Preferred Form of Address: Zou  
Office Location: Rm326, Plant Science  
Office Hours or Availability: Monday to Friday 8:30-4:30 -By appointment only via email.  
Office Phone No: 204-474-6563 (Lab)  
Email: Zhongwei.Zou@umanitoba.ca  
Contact: You can E-mail me regarding any questions about the course.
Course Description
Diseases affecting Canadian field crops. General principles of plant pathology, recognition of symptoms, disease management, and pesticide use safety as they relate to plant disease control. Discussion of diseases attacking field and horticultural crops in the prairies including disease symptoms, disease cycles, prevention and control.

General Course Information
Plant diseases have a major impact on crop production and yield. The students will learn to diagnose, identify and learn technologies to manage most of the important plant diseases including more innovative and alternative methods. While the emphasis will be on management, the course will teach concepts in plant pathology, different types of plant pathogens, disease epidemiology, several methods of disease management and how they can be wisely used or integrated.

Course Goals
To understand, identify and master principles of disease management through the identification of reasons for disease occurrence, increase and their symptoms and interactions with the host.

Intended Learning Outcomes
Will be able to identify common diseases, and their management and effectively communicate the concepts learnt in a professional setting.

Using Copyrighted Material
Please respect copyright guidelines. For more information, see the University’s Copyright Office website at http://umanitoba.ca/copyright/ or contact um Copyright@umanitoba.ca.

Recording Class Lectures
Zhongwei Zou and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission of the instructor.

Textbook, Readings, Materials
3. Diseases and pests of vegetable crops in Canada by Howard, Garland and Seaman (optional)
4. Any documentation from Manitoba Agriculture on crop recommendation for Manitoba
Course Technology

Through lectures (power point presentations), labs, handouts, reading material and interactive class discussions. Due to Covid-19, the lecture will be delivered online through Webex, Bluejeans, or Zoom.

Class Communication

Please note that all communication between myself and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations/student responsibilities

- Attend all classes and labs.
- The students need read the relevant sections of required text, visit recommended websites
- Participate in class discussions.
- Ask questions during the class.
- Refrain from using the cell phone during the class.

Academic Integrity:

Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty. Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room. Exam cheating can also include exam impersonation. 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 plagiarism, cheating, exam impersonation and duplicate submission (see University of Manitoba Undergraduate Calendar 20/21.

Students Accessibility Services

Student Accessibility Services

If you are a student with a disability, please contact SAS for 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.
Expectations: You Can Expect Me To

- Provide you with all important class material-handouts.
- Discuss any questions about the course.
- Respond to your emails regarding the course.
- Give exam results on time.

Schedule A: A list of academic supports available to students


Class Schedule

I Class 1, 2, 3: Introduction to the course, to plant disease, importance of plant disease in cropping system.

Why plant disease control?
Discussion of the course and what is expected of the students, symptoms, terminology, biotic and abiotic diseases, and common knowledge of plant disease.

II Class 4, 5, 6, 7: General concepts of plant pathology; plant pathogens-Fungi, Bacterial, Viruses; plant-pathogen interaction.

Types of plant disease, and Effects of plant disease on crop production and yield loss, Causal agents of plant disease: Fungi, Bacterial, Viruses, How pathogens attack plant and how plants defend against pathogens

III Class 8, 9, 10: Environmental effects on plant disease development, genetics of plant disease, cropping systems and their effect on disease development.

Understanding the disease triangle stories in HOST, PATHOGEON, and ENVIRONMENT

IV Class 11, 12, 13: Diseases on sunflower, flax, potato

Diseases of sunflower,
Diseases of flax,
Diseases of potato (Guest lecturer)

Mid-term Exam I Presentations/Assignments
(October)

V Class 14, 15, 16: Diseases caused by fungi, viruses, bacterial, nematodes

VI Class 17, 18, 19, 20: Diseases of canola

Blackleg,
Clubroot,
Sclerotinia
Verticillium stripe

VII Class 21, 22, 23, 24: Diseases on cereals
Fusarium head blight on wheat
Stem rusts,
Leaf rusts,
Stripe rust,

Mid-term exam II Presentations/Assignments
(November)

Students will be given topics related to agricultural practices, issues, plant disease control methods. (The topics will be assigned two weeks advance for preparation).

Example of topics:
1. Are stubble-borne pathogens on the rise due to minimum-till and no-till farming system?
2. For most important cash crop canola in Canada, how to control blackleg disease through breeding/R gene rotation/biocontrol/fungicide using?

10 minutes presentation, 5 minutes question. Students will be working in groups to research the assigned topics.

VIII 25, 26, 27: Diseases of Corn, soybean

IX 28, 29, 30: plant disease control

Principles of plant disease control
Fungicides application in disease control
Breeding for disease resistance

**X 31: Epidemiology of plant disease**

Basic concepts in plant disease epidemiology  
Disease forecasting and models

**XI 32: Biological control**

**XII Genomics and transcriptomics in understanding plant-pathogen interactions**

**XIII New technology application in plant disease control and revision**
Population genetics of pathogens  
CRISPR/RNAi  
Revision

**Final exam will be determined based on the performance of assignments and Min-terms.**

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.

**Laboratory Expectations**

At the end of lab classes students are expected to develop skills to identify and diagnose common plant diseases in field crops.

<table>
<thead>
<tr>
<th>Lab</th>
<th>Lab Content</th>
<th>Required Readings</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plant diseases illustration</td>
<td>-</td>
<td>Assignment</td>
</tr>
<tr>
<td>2</td>
<td>Canola pathogenicity test: cotyledon inoculation test, adult plant inoculation in GH, Field. Rating methods.</td>
<td>Lab lecture</td>
<td>Assignment</td>
</tr>
<tr>
<td>3</td>
<td>Canola clubroot Sclerotinia stem rot,</td>
<td>Lab lecture</td>
<td>Assignment</td>
</tr>
</tbody>
</table>
### Course Evaluation Methods

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Assessment Tool</th>
<th>Value of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBA</td>
<td>Mid-Term Exam-I/assignments</td>
<td>25%</td>
</tr>
<tr>
<td>TBA</td>
<td>Mid-Term Exam-II/assignments</td>
<td>25%</td>
</tr>
<tr>
<td>TBA</td>
<td>Lab Reports &amp; assignments</td>
<td>20%</td>
</tr>
<tr>
<td>TBA</td>
<td>Final Exam</td>
<td>30%</td>
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### Grading

<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>90-100</td>
<td>4.25-4.5</td>
<td>4.5</td>
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</tbody>
</table>

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.
Assignments should use the Plant Pathology reference style.
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1365-3059/homepage/ForAuthors.html

Students will need to submit lab reports. Each lab report should include a title, objectives, materials and methods, results and discussion.

You will receive your graded exam papers three days after the exam. You will receive your graded lab assignments one week after the date of submission.

Lab assignments are due after one week to be handed over to the TA on the day of the next lab. Late Assignments - will receive 5% less for each day being late and after one week (being late) a 0% will be assigned to the assignement if there was no valid reason (by e-mailing the instructor and TA concerned) for the delay. Missed Assignments - A grade of 0 (zero) will be assigned to any student who misses a lab or does not hand over the lab assignment on time without a valid reason or a doctor’s medical certificate. Missed Exams - A grade of 0 (zero) will be assigned to any student who misses an exam without a valid reason or without the consent of the instructor. No rescheduling of an examination will be allowed, regardless of the circumstances. Those who miss the examination (with a valid reason i.e. medical certificate) will have to retake the exam (a whole new exam).

The voluntary withdrawal deadline is on 23rd November 2020. Students will receive marks of midterm I and Presentation (35% of final grade) before deadline.

Evaluative feedback will be provided to the students prior to the withdrawal date.