

# Syllabus

## DAGR 0910: Integrated Sustainable Agri-Food Systems (Winter 2022)

LAND ACKNOWLEDGEMENT

The University of Manitoba campuses are located on original lands of Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene peoples, and on the homeland of the Métis Nation.

We respect the Treaties that were made on these territories, we acknowledge the harms and mistakes of the past, and we dedicate ourselves to move forward in partnership with Indigenous communities in a spirit of reconciliation and collaboration.

We recognize that Indigenous communities have important knowledge of land and living essential to a complete understanding of our shared reality.

## TABLE OF CONTENTS

COURSE DETAILS	3
INSTRUCTOR CONTACT INFORMATION	3
COURSE DESCRIPTION4	ŀ
COURSE GOALS	
COURSE LEARNING OBJECTIVES	;
COURSE MATERIALS AND TECHNOLOGY	;
EXPECTATIONS AND POLICIES	
COURSE SCHEDULE	
PROPOSED CLASS SCHEDULE: (SUBJECT TO CHANGE)	
VOLUNTARY WITHDRAWAL	
COURSE ASSESSMENT	
Assignment #1: Farmer Interviews	)
Assignment #2: Experiential Learning Report	)
Assignment #3: Farm plans	)
Assignment #4: Assess Farm System10	)
Assignment #5: Implementation Report10	)
GRADING	L
REFERENCING STYLE	L
ASSIGNMENT FEEDBACK	L
ASSIGNMENT EXTENSION AND LATE SUBMISSION POLICY	L
ACADEMIC INTEGRITY	2
LEARNER SUPPORT	2
USING COPYRIGHTED MATERIAL	;



## **COURSE DETAILS**

Course Title & Number:	DAGR 0910 - Sustainable Agri-Food Systems	
Pre or Co-Requisite:	DAGR 0980: This course is restricted to students in the Year 2 Agriculture Diploma.	
Number of Credit Hours:	3	
Course Format:	This syllabus has been developed with contingency plans regarding U of Manitoba covid-19 policies and protocols. This course will be offered via remote learning until at least Feb 24, 2022. It is likely that the course will be remote learning for the entire term.	
Class Schedule:	The course will be conducted through synchronous and asynchronous sessions. Asynchronous sessions will be posted on UM Learn at the beginning of the week. Synchronous sessions are scheduled Monday & Friday 9:00-10:15.	

## **Instructor Contact Information**

Instructor(s) Name & Preferred Form of Address:	Phillip (Phil) Veldhuis
Office Hours or Availability:	Consultation availabilities will be scheduled via MS Teams and/or in person office hrs.
Office Phone No.	Home Phone 204 735 2272 (Please use during daylight hours only).
Email:	Phillip.Veldhuis@umanitoba.ca Whenever possible, emails should be business-like in tone and format.
Contact:	1 <sup>st</sup> point of contact is Email: <u>Phillip.Veldhuis@umanitoba.ca</u> Expect reply within 1 hr during regular workdays. Reply times evenings and weekends may vary.



## **COURSE DESCRIPTION**

## **U of M Course Calendar Description**

The agri-food system encompasses how food is being produced, processed, transported, marketed and consumed. The three pillars of sustainability (economic, social and environmental) will be used to evaluate and improve agricultural sustainability, and will also be applied to the agri-food system (beyond production). Sustainable solutions are unique to each agricultural situation and require long-term thinking and evidence-based decision-making. Focus will be on the balance between food production practices and protecting the natural resources on which agriculture is reliant.

## **General Course Description**

This course will identify and evaluate strategies you can use to improve your farms sustainability. You will develop an awareness of farm level and global sustainability; and understand why both levels need to be considered.

Through the three pillars of sustainability (social, economic, and environmental) you will understand how farming decisions impact people, the economy and the environment. You will identify and explore multiple strategies to improve sustainability. You will evaluate which strategies are most suitable for the farm they study in DAGR 0890 & DAGR 0990.

This course will challenge you to view farming as a part of a complex food system. You will understand how farming and our current food systems came to exist. This broad view of agriculture will improve your ability to think critically about how and why we farm; and make informed decisions about doing so sustainably. This course builds on your existing farm knowledge and provides you an opportunity to explore sustainable strategies suitable for incorporation into their farm business management project.

## **Course Goals**

- 1. Understand "sustainability" within the agriculture food system.
- 2. Understand what strategies are available to improve sustainability.
- 3. Learn to situate agriculture within food systems.
- 4. Learn to situate agriculture within the ecosystem.



## **Course Learning Objectives**

Upon successful completion of this course, students will be able to:

- 1. Define and describe agricultural sustainability.
- 2. Differentiate between farm level and global level sustainability.
- 3. List the 3 pillars of agricultural sustainability; explain how they are interrelated.
- 4. Explain why agricultural sustainability measured by improvements not a fixed objective.
- 5. Describe what food systems are: distinguishing between local and global food systems.
- 6. Examine the relationship between energy used to create food and edible food produced.
- 7. Describe how agricultural sustainability can be evaluated.
- 8. Evaluate agricultural sustainability using existing tools.
- 9. List examples of systems-based approaches, production practices, technologies and conservation strategies that can be used to improve agricultural sustainability.
- 10. Recognize that agricultural production practices are more sustainable when they are wellmatched to the local natural environment.
- 11. Select sustainability-improvement strategies based on an examination of the specific farming situation.
- 12. Explain why there is no single solution to agricultural sustainability.
- 13. Describe strategies that could improve the sustainability of our food system beyond the farm gate, such as reducing food loss and waste.
- 14. Apply evidence-based decision-making skills to suggest strategies to improve the sustainability of agriculture.
- 15. Communicate information about agricultural sustainability to their peers.
- 16. Understand why food security is a problem in Canada and how it is being alleviated.

## COURSE MATERIALS AND TECHNOLOGY

At least a portion of this course will be delivered as "remote learning". Students are expected to have the minimum technology equipment to access <u>UMLearn</u>. These requirements can be checked here: <u>System</u> <u>Check - University of Manitoba (desire2learn.com)</u>.

This course will include interactive discussions of student work. You should have the necessary technology for interactive two way video calls using MS-TEAMS.



#### DAGR 0910: Sustainable Agri-Food Systems

#### ATTENTION STUDENTS RESIDING OUTSIDE WINNIPEG

As this is a remote learning course, all instructional activities and deadlines will be Winnipeg time (Central Time). Please make sure your calendars are adjusted to reflect any time changes. Please inform me as soon as possible if you are taking the course while residing outside of Winnipeg, specifically:

- If you are in a rural Canadian area affected by poor internet connections that may impact completing assessments and exams on time
- If you are in another time zone within or outside Canada, specify where you are, and if you foresee any challenges with attending classes and completing assessments and exams on time

NOTE: It is your responsibility to communicate with me <u>well in advance</u> of tests/exams/assignment due dates, of any ongoing issues, OR <u>immediately</u> once an issue arises that *may* impact your ability to complete course work.

**Course tour:** In compliance covid-19 protocols we will not be doing any on farm visits or trips this term, instead students will be asked to participate in online tours or seminars.

Textbook: This course will have no required textbook.

## **EXPECTATIONS AND POLICIES**

Student Responsibilities:

• I will expect you to be courteous and respectful to guests speakers, fellow students and myself. Please see the University of Manitoba's <u>Respectful Work and Learning Environment Policy</u>.

- Course expectations will be consistent with the policies of Section 2.5 ROASS
- Regularly log in to DAGR 0910 UM Learn site to access course information.
- Daily access to University of Manitoba student e-mail to receive course communications.
- Seek clarification from instructor if course syllabus or content is not understood.
- Complete all required course work.
- Comply with University of Manitoba Policies and Procedures.

#### **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 <u>Communication with Student Policy</u>.

#### Academic Integrity:

Each student in this course is expected to abide by the University of Manitoba <u>Academic Integrity</u> <u>principles</u>. 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. When you work in a team, ensure that your project complies with the academic integrity regulations.



Inappropriate collaborative behavior and violation of other Academic Integrity principles, will lead to the serious <u>disciplinary action</u>. Visit the <u>Academic Calendar</u>, <u>Student Advocacy</u>, and <u>Academic Integrity</u> web pages for more information and support.

It is expected that all submitted work should be completed independently. Information from mentors or group collaboration should be appropriately cited in work submitted for academic credit.

#### **Recording Class Lectures:**

Because this class will occasionally present confidential or proprietary information, 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 course administrator. All course materials (both paper and digital) are only for the participant's private study and research.

#### Student Accessibility Services:

The University of Manitoba is committed to providing an accessible academic community. <u>Students</u> <u>Accessibility Services (SAS)</u> offers academic accommodation supports and services such as notetaking, 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: <u>Student\_accessibility@umanitoba.ca</u>

#### **Student Accessibility Services:**

The University of Manitoba is committed to providing an accessible academic community. <u>Students</u> <u>Accessibility Services (SAS)</u> 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: <u>Student\_accessibility@umanitoba.ca</u>

#### **Student EXPECTATIONS:**

You can expect me to...

- make significant "office hours" available for individual consultation.
- your term work to be graded and returned approximately two weeks after submission.
- facilitate meeting your individual goals for the course.
- create an open and inclusive space for learning.
- Treat you with respect and fairness.
- Comply with University of Manitoba Policies and Procedures.



## **COURSE SCHEDULE**

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 <u>Section 2.8 of ROASS</u>.

#### Proposed class schedule: Regular Classes, Monday & Friday: Starting January 7th.

Please see detailed schedule below.

Virtual Food Policy Discussion, Winnipeg City hall: January 24 at 2:30pm.

**Virtual Tour: January 21<sup>st</sup>.** It is almost impossible to discuss global food security and environmental policy without discussing Brazil. We will make the most of virtual tours by going to Brazil.

Date	Торіс	Due.
Jan 7	Syllabus / Expectations	
Jan 10	Defining Sustainability	
Jan 14	3 Pillars of Ag Sustainability	
Jan 17	The value of Sustainability	Assign 1: Farmer Interviews.
Jan 21	Experiential Learning: Brazil	
Jan 24	Experiential Learning: Wpg City Policy	
Jan 28	Sustainable farm plans	Assign 2: Experiential Learning Report.
Jan 31	Farming systems.	
Feb 4	Farming Systems (cont).	
Feb 7	Farming System Guest speaker.	
Feb 11	Resource management.	Assign 3: Assess Farm Plan Program.
Feb 14	Resource management guest speaker.	
Feb 18	Louis Riel Day / Reading week.	
Feb 21,25	Food systems (farm to table).	
Feb 28	System Choices	
Mar 4	Evaluating systems	
Mar 7	Indigenous Agriculture	Assign 4: Assess Farm system.
Mar 11	Guest speaker indigenous ag.	
Mar 14	Policies in Agriculture (roundup).	
Mar 18	Policies in agriculture (assess).	Assign 5: Implementation Report / Final Prez Slide.
Mar 21	Global sustainability. (final prez week).	
Mar 25	Local sustainability.	
Mar 28	Class summary.	
April 1	Student Slides Sharing.	
April 4	Student Slides Sharing.	Course Evaluation (voluntary).

## Proposed Class Schedule: (subject to change).



## Voluntary Withdrawal

Last day for Voluntary Withdrawal from this course in winter 2022 will be March 17<sup>th</sup>.

Students should make themselves aware of the last day to drop classes for full refund and the last day to drop class without academic penalty. All Students who do not officially drop the class will be assigned a final grade on your official transcript even if no coursework is submitted. Please refer to the Registrar's Office web page for more information as these dates may be subject to change in response to Covid-19 accommodations.

I am always willing to discuss your progress and strategies for improvement in the course.

## COURSE ASSESSMENT

Course assessment will be based on 5 written assignments, all of equal value.

#### Assignment #1: Farmer Interviews.

GOAL: Students will explore how current producers are actively working towards increasing sustainability on their farm.

PROCEDURE: Students will interview 3 different agriculture producers regarding what they have done to increase the farms sustainability and how they are actively making changes to increase sustainability.

SUBMISSION GUIDELINES: Submitted via drop box on UM Learn by as per class schedule.

EVALUATION CRITERIA: A grading rubric will be provided on UM Learn

## Assignment #2: Experiential Learning Report.

**GOAL**: Capture course relevant learning and experience from Experiential Learning Week.

**PROCEDURE**: Students will attend experiential activities (virtually) and report.

SUBMISSION GUIDELINES: Electronic copy submitted in the UMLearn Assignment dropbox as per class schedule.

**EVALUATION CRITERIA:** A detailed rubric will be available with handout. Feedback will include suggestions about how to include report information in remaining course work.

#### Assignment #3: Farm plans.

GOAL: To understand a sustainability farm plan program such as Manitoba's Environmental Farm Plan



PROCEDURE: Students will choose a farm plan program to study, summarize their chosen plan and explain how it is relevant to their farm.

SUBMISSION GUIDELINES: Submitted via drop box on UM Learn as per class schedule.

EVALUATION CRITERIA: A grading rubric will be provided.

#### Assignment #4: Assess Farm System.

GOAL: Each student will research a chosen farming system

PROCEDURE: Each student will do a research project on a specific farming system and observe how it meets the 3 pillars of sustainability.

SUBMISSION GUIDELINES: Submitted via drop box on UM Learn as per class schedule.

EVALUATION CRITERIA: A grading rubric will be provided.

#### Assignment #5: Implementation Report.

GOAL: Students will report on actions that can be taken to further increase sustainability on their farm.

PROCEDURE: Students will observe how their farm, or case farm, has increased in sustainability and recommend actions that could further improve sustainability on the farm. This will be summarized in a page or slide that can be included in the students "Final Prez" documents.

SUBMISSION GUIDELINES: Submitted via drop box on UM Learn as per class schedule.

EVALUATION CRITERIA: A grading rubric will be provided on UM Learn

TITLE: Implementation Report.

GOAL: Students will recommend changes to their own farms system to increase sustainability.

PROCEDURE: Using the material covered in class and tools of evaluation, students will demonstrate their ability to recommend sustainability measures suitable for their own farms' operations.

SUBMISSION GUIDELINES: Submitted via drop box on UM Learn by March 29

EVALUATION CRITERIA: A grading rubric will be provided on UM Learn.

Further details pertaining to each assignment will be provided on UM Learn.



## Grading

Your final grade in the course will be the average of your grades for the required assignments. All assignments are of equal value.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	93-100	4.25-4.5	4.5
Α	86-92.9	3.75-4.24	4.0
B+	78-84.9	3.25-3.74	3.5
В	71-77.9	2.75-3.24	3.0
C+	65-70.9	2.25-2.74	2.5
С	57-63.9	2.0-2.24	2.0
D	50-56.9	Less than 2.0	1.0
F	Less than 48		0

Letter Grades will be assigned using the following benchmarks.

## **Referencing Style**

You will do independent research for your coursework. Reference to supporting information is crucial to building evidence. This should be done clearly and frequently. Each reference should make it absolutely clear exactly from who, where and when you found your supporting information. The reference itself should allow anyone who wished to find the exact place and time where you found your information.

For example, your reference to a video should indicate: The person responsible for the content of the video; where the video can be viewed; the time the video was created; the time in the video where the relevant information is found. **A URL is not a sufficient reference.** 

You can use any referencing style, consistently. MLA is recommended for ease of use. <u>OWL Purdue</u> is an excellent resource for students with questions about citations and references: <u>https://owl.purdue.edu/owl/research\_and\_citation/resources.html</u>

## Assignment Feedback

Assignments will receive comments in rubrics that will be uploaded to the assignment dropbox. Students can expect to receive feedback to their work approx. two weeks after submission. Students who have received low grades and challenging feedback on their assignments may request a rewrite opportunity that will be granted at the discretion of the instructor.

## **Assignment Extension and Late Submission Policy**

Reasonable assignment extensions may be granted at the discretion of the instructor. Late assignments may not be accepted without prior approval from the course instructor or student services.



## Academic Integrity

You are expected to compete your coursework and program of study with integrity by making a commitment to the six fundamental values of honesty, trust, fairness, respect, responsibility, and courage. <u>http://umanitoba.ca/student-supports/academic-supports/academic-integrity</u>

Academic integrity looks like referencing the work of others that you have used and completing your assignments independently unless otherwise specified.

You 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 <u>http://umanitoba.ca/copyright</u> for more information.

## LEARNER SUPPORT

#### Writing and Learning Support

The Academic Learning Centre (ALC) offers writing and learning supports to help you throughout your academic program. These supports are offered online during the Covid-19 pandemic.

Make an appointment with an ALC 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. The ALC also has an English as an Additional Language (EAL) specialist available to work with students on improving their English-language academic writing skills.

Consult an ALC learning specialist or attend an academic skills workshop to improve your time management, learning strategies and test-taking strategies. Get support in select courses by making an appointment with an ALC content tutor. The ALC also offers peer-facilitated study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In SI study groups, students ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.

In addition to one-to-one and group sessions, you can also find writing and study tip sheets and videos on the ALC website.

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

Contact the Academic Learning Centre by calling 204-480-1481 or emailing <u>academic\_learning@umanitoba.ca</u>. Bannatyne students can contact the Bannatyne Student Services office at 204-272-3190.

#### University of Manitoba Libraries (UML)

Research begins at <u>UM Libraries</u>. <u>Learn at the Libraries</u> is a great place to start, with information for students on academic writing, how to search the library, evaluating resources, and writing



citations. As the primary contact for all research needs, your <u>liaison librarian</u> can play a vital role when completing academic papers and assignments. Liaisons can answer questions about locating appropriate resources or managing citations, 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 online. When working remotely, students can also receive help online through <u>Ask Us!</u> chat. For further detail about the libraries' services and collections, <u>visit the Libraries' web site</u>. Regularly check our <u>COVID-19 Update</u> page for available library services and access to resources for Fall 2020

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:* <a href="http://umanitoba.ca/student/counselling/index.html">http://umanitoba.ca/student/counselling/index.html</a>

474 UMSU University Centre or S211 Medical Services Building

(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.

http://umanitoba.ca/student/case-manager/index.html

520 UMSU University Centre

(204) 474-7423 (Student Support Intake Assistant)

## **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. <u>Note that due to fire</u> <u>displacement, UHS is unable to provide in-person medical care on the Fort Garry Campus until</u> <u>October, 2020</u>.

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

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



#### **Health and Wellness**

Contact our Health and Wellness Educator if you are seeking information on health topics, including physical and mental health concerns, alcohol and substance use harms, or sexual violence. You can also access peer support from a *Healthy U* peer health educator.

Health and Wellness Educator

https://umanitoba.ca/student/health-wellness/welcome-about.html

britt.harvey@umanitoba.ca

469 UMSU University Centre

(204) 295-9032

#### Sexual Violence Resource Centre

Contact SVRC if you have experienced sexual violence or are seeking information about how to help somebody else. SVRC provides inclusive, survivor-centred, trauma-informed services, such as consultation, referrals, safety planning, and a range of on-site supports, including counselling by Klinic.

Sexual Violence Resource Centre

https://umanitoba.ca/student-supports/sexual-violence-support-and-education

svrc@umanitoba.ca 537 UMSU University Centre

(204) 474-6562 (Sexual Violence Intake and Triage Specialist)

#### 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 <u>Academic Calendar http://umanitoba.ca/student/records/academiccalendar.html</u> 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



Jniversity | Faculty of Agricultural Manitoba | and Food Sciences 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 <a href="http://umanitoba.ca/registrar/">http://umanitoba.ca/registrar/</a>
- 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 <a href="http://umanitoba.ca/academicintegrity/">http://umanitoba.ca/academicintegrity/</a> 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\_discipli ne.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:
<u>http://umanitoba.ca/admin/governance/governing\_documents/community/230.html</u>
More information and resources can be found by reviewing the Sexual Assault site
<u>http://umanitoba.ca/student/sexual-assault/</u>

For information about rights and responsibilities regarding **Intellectual Property** view the policy: https://umanitoba.ca/admin/governance/governing\_documents/community/235.html



Jniversity | Faculty of Agricultural Manitoba | and Food Sciences 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 <a href="http://www.http://wwww.http://www.http://www.http://www.http://www.http://wwww.http://wwwww.http://wwww.http://www.http://wwww.http://wwww.

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

#### **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

#### ACKNOWLEDGEMENTS

Course Authors: Phil Veldhuis, Maggie Abwao. Content Preparation Thea Green.

## **Using Copyrighted Material**

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 <a href="http://umanitoba.ca/copyright">http://umanitoba.ca/copyright/</a> or contact <a href="http://umanitoba.ca/copyright/">umanitoba.ca/copyright/</a> or contact <a href="http://umanitoba.ca/copyright/">umanitoba.ca/copyright



Jniversity | Faculty of Agricultural Manitoba | and Food Sciences