The University of Manitoba

Faculty of Agricultural and Food Sciences

COURSE TITLE: **Cropping Systems**

Department: Plant Science **Course Number:** PLNT 3510

Academic Session: Fall 2011 **Credit Hours:** 3

Prerequisites and how they apply to this course:

Crop Production PLNT 2500 (or 039.250) or by permission of the instructor

Classroom Location: 130 Agriculture

Meeting Days and Class Hours: Tuesdays 2:30-5:25 (15 minute break scheduled during each class)

Department Office Location: Rm 222 Agriculture **Phone Number:** 474-8221

Course Web Page: Angel course website at https://angel.cc.umanitoba.ca

Instructor Information

Name & Title: Dr. Yvonne Lawley, Assistant Professor, Department of Plant Science

(Students are welcome to address me by name as either Yvonne or Dr. Lawley)

Office Location: 105 Plant Science **Office Phone Number:** 474-6504

Email Address: yvonne_lawley@umanitoba.ca (preferred form of communication outside class)

Office Hours: By appointment

Please contact me by email to set up an appointment at a mutually agreeable time. I also meet with students on an "open door" basis. If my office door is open and you have a question, knock and inquire if I have a moment to speak with you. I teach another course immediately before this course on Tuesdays. Please approach me after class if you have questions.

Course Philosophy

Students' Learning Responsibilities

Every university student has made a choice to continue their education. You are responsible for your own learning and must take ownership of your progress in this course. To get the most value for the time and money you have invested in this course: attend class regularly, participate in discussion, read assigned materials, complete all assignments or exams with academic integrity. All students are encouraged to ask questions and seek assistance with course material. Students are required to interact in a professional manner and respect all members of our learning community (fellow students, instructors, guest speakers).

Why this course is useful?

This course teaches you to think about agriculture from a systems perspective. It integrates information learned throughout your degree and focuses on learning how to use this knowledge to solve agronomic problems. This course will give you a broader understanding of the evolution of prairie cropping systems and exposure to international, alternative, and futuristic cropping systems.

Who should take this course?

This course is intended for final year agronomy students. Students from other programs are welcome.

How this course fits into the curriculum

This course serves as an unofficial capstone course for the agronomy program. It integrates information learned throughout the degree program and focuses on learning how to use this knowledge to identify and solve agronomic problems.

Course Description/Objectives

Undergraduate Calendar Description

(Formerly 039.351) Examination and analysis of sustainable prairie cropping systems. Emphasis will be placed on integrated systems that optimize the benefits of crop rotation, and conserve soil, water and wildlife resources. Conventional, traditional and alternative crop production systems will be discussed. Includes a limited number of tutorials to allow for field tours and guest speakers. Prerequisite: PLNT 2500 (or 039.250).

Instructional Methods

This course will be taught using a combination of traditional lectures, case studies, group discussions, and guest speakers. Videos, You-Tube clips, movies, radio broadcasts, and news articles will be integrated into lectures and assignments. Students will learn independently through reading assignments and their term project. Group work and problem solving skills will be developed during case studies and group discussions.

Course Objectives

The objective of this course is to understand crop production within a systems context, learn about the diversity of prairie and international cropping systems, and to practice applying acquired knowledge and observation skills to solve agronomic problems.

Learning outcomes

1. Define and describe the components of cropping systems.
2. Discuss the potential consequences of changes to cropping system components to the overall function of a system.
3. Describe current cropping systems of the Canadian Prairies.
4. Gain awareness of the diversity of cropping systems in the Canadian Prairies, North America, and the world.
5. Explain the technological and biological breakthroughs that have contributed to the productivity and problems of current cropping systems.
6. Identify the limitations and challenges of current cropping systems.
7. Describe emerging alternative cropping systems
8. Define sustainable agriculture and the indexes used to compare the sustainability of cropping systems.
9. Apply knowledge and use observation skills to identify and solve agronomic problems
10. Think about crop production and problem solving from a systems perspective.

Additional Comments:

This is a “big picture” course that focuses on synthesizing information. You will be learning content and skills in a different way than many of your previous courses. In previous agronomy classes you likely focused on content:

- The steps to growing a successful wheat crop,
- The physical, chemical, and biological methods of weed control,
- Disease cycles and how to control pests by breaking the weakest link,
- The form and rate of fertilizer applications to optimize canola yield
- Soil management practices to minimize soil erosion

This class focuses on learning how to link this information together to identify and evaluate the pieces as part of a larger cropping system. There will be few lecture notes on "the 5 steps of this" or the "10 principles of that." You will be using the knowledge gathered throughout your degree program and your observation skills to learn about the world around you, and practice make informed decisions about agronomic problems. You will be asked to question the current assumptions we make about agriculture and consider how it is likely to change in the future. You will be evaluated on your ability to describe and define agricultural systems, contrast similarities and differences, synthesize information, make observations, and problem solve.

Description of Examinations

There will be one essay and long answer style mid-term exam in the course. The term project will serve as your final course evaluation. A student with a documented learning disability must contact the professor by September 30th to request an accommodation for the mid-term exam or other course assignments.

Description of Assignments

There will be three main types of assignments for the course:

1. Reading responses – students will be given regular readings to accompany lecture material. Four of these readings will have assigned reading responses of 400 to 500 words. Responses will 1) summarize the article, 2) identify the new ideas you learned from reading the article and 3) identify 1 or 2 questions wonderings or criticisms.
2. Group case studies – three case studies will be presented to compliment lecture material. Students will be asked to work in groups to develop systems solutions to current or emerging agronomic problem. As in most real life situations, incomplete information will be available and students will need to come up with a list of questions and potential sources for answers. There are likely to be multiple solutions every case study problem and groups will need to justify the strategy they select. More details on assignment deliverables will be provided in class.
3. Term project – students will begin working on their term project in the last month of the course. This project will require you to apply the skills you have developed throughout the course and will serve as your final course evaluation. Student will select the topic of their term project and conduct independent research, systems analysis, and problem solving. Additional details on the term project will be provided in class.

Grade Evaluation and Assignment Due Dates

Assignments and Exams	Grades	Due Dates
Reading responses	4 assignments x 5 marks = 20	As assigned
Group case studies	3 assignments x 10 marks = 30	As assigned
Mid-term exam	15	October 18
Term project	35	December 6

Important Dates

Sept 8-21, 2011 – Course revision period

Nov 16, 2011 – Last day for voluntary withdrawal from the course without academic penalty

Texts, Readings, Materials

Textbook(s)

There is no textbook for this course. Required readings for this course will be posted on the course website or provided in class.

Supplementary Reading and Additional Materials

A list of supplementary materials, such as library books, websites, news articles, and web based videos will be posted on the course website. If you are struggling with a particular course subject, contact the professor for specific suggestions of supplemental materials.

Course Policies

Late Assignments

Assignments are due at the start of each class period. Late assignments will lose 20% per working day (Mon-Fri) and will not be graded if they are more than one week late. Assignments will not be accepted via email unless prior approval is given by the instructor. Late assignments should be turned in at the instructor's office (Rm 105 Plant Science). Slide assignments under the office door if it is not open. If a student is unable to complete an assignment due to a medical or other emergency, contact the professor as soon as possible by email. Be prepared to provide a doctor's note or other documentation.

Missed Assignments

Students will receive a grade of incomplete until all course assignments are submitted.

Missed Exams

There will be no re-writes for the mid-term exam. If a student misses the mid-term exam due to a medical or other emergency, contact the professor as soon as possible by email. Be prepared to provide a doctor's note or other documentation. If the mid-term exam is missed due to a documented medical or other emergency, the 15% for the mid-term exam will be shifted to the final project.

Cell phones and computer use

Please turn off your cell phone during class. A 15 minute break is scheduled during all classes and you will be able to check messages at that time. Students are encouraged to bring computers with them to class for note taking or web based research during group discussion periods. Please respect the instructor and your fellow class member by refraining from distracting and unnecessary web searching and communication (email, instant messaging, facebook, etc.) during class time.

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 Section 8 on Academic Integrity in the University of Manitoba Undergraduate Calendar 11/12, available at:
http://crscalprod1.cc.umanitoba.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog&catalogid=60&chapterid=227&topicgroupid=4056&loaduseredits=False.

Use of Third Party Detection and Submission Tools

Electronic detection tools may be used to screen assignments in cases of suspected plagiarism.

Group Work Policies:

Team and group work skills are qualities that most employers are looking for in job candidates. Treat the group work case studies and group discussion in this course as an opportunity to develop and document these skills for use in future job application and interviews. Group member contributions will be evaluated by anonymous survey

for case study assignments and will contribute to the case study grade. All group members should exchange contact information (ex. email, phone, facebook profile) at the start of a project so that you can get in contact with each other outside of class. If a problem cannot be resolved within the group, please contact the professor sooner rather than later (ie - not the day before the project is due) to help facilitate a solution.

Course Schedule

Lecture	Topics	Date
1	Cropping systems, The role of agronomists	September 13
2	Sustainability assessment, The grand challenge, Food safety	September 20
3	History and current prairie cropping systems Case Study 1	September 27
4	Conservation agriculture	October 4
5	Ecological agriculture	October 11
6	Mid-term exam 1	October 18
7	Crop-livestock integration Case Study 2	October 25
8	Nutrients and water	November 1
9	Diversity, Crop pests Case Study 3	November 8
10	Soil quality, Biology	November 15
11	Biotechnology and Biofuels	November 22
12	International cropping systems 1	November 29
13	International cropping systems 2 Term Project due	December 6