



**University of Manitoba
Faculty of Agriculture and Food Sciences
Departments of Plant & Animal Science
Winter Term 2021**

ANSC 4410 & PLNT 4410

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COURSE DETAILS

Course Title & Number:	Grassland Agriculture: Plant, Animal & Environment ANSC4410, PLNT4410
Number of Credit Hours:	3
Class Times & Days of Week:	Monday, Wednesday, Friday. 10:30-11:20am Lab - Monday 2:30-5:15
Location for classes/labs/tutorials:	Online via Webex and/or zoom/bluejeans
Pre-Requisites:	NA

Instructor Contact Information

Instructor(s) Name:	Dr. Douglas J. Cattani (DC), Assistant Professor, Department of Plant Science
Office Location:	Rm 105 Agriculture Building
Office Hours or Availability:	By appointment or before or after class
Office Phone No.	204-474-6071
Email:	Doug.Cattani@umanitoba.ca All email communication must conform to the Communicating with Students university policy. (Please familiarize yourself with the policy). I expect to respond telephone and email queries within 24-48 hours (circumstances permitting) during the week. I will not normally be checking my email or UM-Learn on weekends and holidays.

Instructor(s) Name:	Dr. Emma J. McGeough (EM), Assistant Professor, Sustainable Grasslands/Livestock Production Systems, Department of Animal Science
Office Location:	Rm 225 Animal Science Building
Office Hours or Availability:	Virtual meetings can be set up by appointment. Available online for questions after class each day
Office Phone No.	204-474-8056

Email:	emma.mcgeough@umanitoba.ca All email communication must conform to the Communicating with Students university policy. (Please familiarize yourself with the policy). I expect to respond telephone and email queries within 24-48 hours (circumstances permitting) during the week. I will not normally be checking my email or UM-Learn on weekends and holidays.
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Course Description

Inter-relationships between the biological components of grassland agriculture as they relate to forage production on the Canadian Prairies. Topics include utilization by domestic animals, plant community relationships and role of forages in livestock production systems.

Who should take this course?

- 1) Students interested in animal production.
- 2) Students interested in the maintenance of the perennial grasslands (cultured and native) and the ecological benefits they provide.
- 3) Students interested in the use of perennial species for food and fibre.
- 4) Students interested in diversity in agriculture and the role of grassland agriculture in the environmental footprint of livestock production.

General Course Information

Grassland agriculture is important for animal agriculture and for the maintenance of soil quality of lands not suited to annual crop production. The relationship between plant cover, the health of the environment and the production of animals is key to understanding both the utilization of grasslands for animal feed, the productivity of the grassland and the productivity of animal agriculture. The beef production industry in western Canada has been negatively impacted by BSE and other outside influences in the past decade leading to a reduction of lands under perennial cover (pasture, hayfield and range), exposing the landscape to additional risks that come with annual crop production. The maintenance of perennial crops for animal feed provides habitats for many native flora and fauna that would not exist under annual cropping. The economic production of animals for human consumption is important, however all costs and benefits must be understood in order to achieve this in a sustainable manner.

Course Objectives

By the end of this course, Students will:

1. Be able to identify forage crop species, assess their suitability to the area of application and formulate seeding mixtures (if applicable) and a management system for grasslands.

2. Categorize plant growth strategies and generate plant stands that provide adequate agricultural and ecological benefits to the area of concern.
3. Illustrate the production of forages and explain how plant growth and development impact forage quantity and quality.
4. Understand plant and animal interactions to develop and utilize a planned pasture system effectively.
5. Be able to identify requirements of an effective grazing system.
6. Determine the greenhouse gas footprint of an integrated forage/crop/ruminant livestock operation

Learning Outcomes

Learning outcomes assist: i) students to identify the knowledge, skills, attitudes and personal attributes expected of them to successfully complete their program of studies; ii) faculty to develop learning goals and objectives in their courses and programs, in prioritizing and focusing the learning experiences, and in the selection of appropriate assessment tools and; iii) potential students and outside agencies to assess the quality of our academic programs.

Using Copyrighted Material

Please respect copyright. Copyrighted content is used in this course. The Course Instructor holds 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. The content used is appropriately acknowledged and is copied in accordance with copyright laws and University guidelines. Copyrighted works, including original creations by the instructor, 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 Quizlet), or any website, or App, 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.

Recording Class Lectures

Drs. Doug Cattani, Emma J. McGeough 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 course instructors. Course materials (both paper and digital) are for the participant's private study and research.

Textbook, Readings, Materials

Textbook(s) – Authors, Titles, Edition

None.

Supplementary Reading:

1. Heide, O.M., 1994. Control of flowering and reproduction in temperate grasses. *New Phytologist* 128:347-362.
2. Glover, J.D., Culman, S.W., DuPont, S.T., Broussard, W., Young, L., Mangan, M.E., Mai, J.G., Crews, T.E., DeHaan, L.R., Buckley, D.H., Ferris, H., Turner, R.E., Reynolds, H.L. and D.L. Wyse. 2010. Harvested perennial grasslands provide ecological benchmarks for agricultural sustainability. *Agriculture, Ecosystems and Environment* 137:3–12.
3. Undersander et al. 2005: Alfalfa Management Guide
4. Samson and Knopf, 1994. Prairie conservation in North America. *Bioscience* 44:418-421.

Additional Materials:

Additional handouts may be given out in class.

Several textbooks (with their library call numbers) can be used as background for the course lecture which include:

- Grazing Management: An Ecological Perspective - SF 85 .G73 1991
- Range Management: Principles & Practices - SF 85 H56 2001
- Nutritional Ecology of the Ruminant - SF 95.V36 1994
- Agronomy of Grassland Systems - SB 199 P37 1997
- Forages – An Introduction to Grassland Agriculture. Volume 1. Barnes, Nelson, Collins and Moore. 2003 Iowa State University press. Call #: SB 193 F64 2003 v. 1 Location: Reserve desk
- Cool Forages: Advanced Management of temperate forages. 2013. S. Bittman and D. Hunt (copies to be given to each group for pasture planning assignment)

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 classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services. Student 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 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)

Recordings (or photographs) are not permitted except when required to do so by Student Accessibility Services.

Course material, where applicable, will be uploaded to UM Learn under both PLNT 4410 and ANSC 4410. Downloaded course material from UM Learn must not be used for any other purpose than for the participant's private study and research.

Class Communication

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: [University of Manitoba - University Governance - Governing Documents: University Community \(umanitoba.ca\)](http://University of Manitoba - University Governance - Governing Documents: University Community (umanitoba.ca))

Please note that all communication between instructors and students must comply with the electronic communication with student policy ([University of Manitoba - University Governance - Governing Documents: University Community \(umanitoba.ca\)](http://University of Manitoba - University Governance - Governing Documents: University Community (umanitoba.ca))). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations: I Expect You To

Students are expected to attend class regularly, read assigned materials in a timely manner, participate in discussion and complete all assignments and examinations with academic integrity and honesty. Students are encouraged to ask questions for clarification and seek assistance from instructors if they require additional explanations or resources. In addition, students are expected to conduct themselves in a manner that is respectful of the learning environment, other students and instructors.

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 7, p. 29 in the University of Manitoba Undergraduate Calendar 09/10).

For individual assignments, students may cooperate and discuss the assignment; however, each student must hand in their own assignment, written in their own words. Duplicate assignments (either whole or in part) will be considered acts of academic dishonesty and will be subject to disciplinary action according to University policy.

For group assignments, peer evaluation may be used for some assignments. Part of the process of developing good group dynamics is the ability of group members to decide if all members are contributing effectively to group activities. As a result, a peer evaluation mark for each group will represent the average points received on the evaluation.

To do this rating, each student will rank all other students in their group. They will give a rating between 0 and 10. Ten would mean that they feel the other student contributed fully and should get the full mark assigned to the group, while marks below ten would indicate. When making this evaluation you should consider all aspects of group interaction including being on time, quality

and quantity of ideas contributed, quality and quantity of work and ability to keep the group cohesive to achieve the group objective.

The mark assigned to each group member will reflect a combination of the group mark and peer evaluation

Use of Third Party Detection and Submission Tools

Electronic detection tools such as Respondus Monitor, Lockdown Browser, or Webex may be used as proctoring tools to detect plagiarism or cheating. It is the student's responsibility to ensure they have computer with camera to meet these requirements.

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.

Student Accessibility Services [Accessibility | University of Manitoba \(umanitoba.ca\)](#)

520 University Centre

204 474 7423

Student_accessibility@umanitoba.ca

Class 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 Section 2.8 of the – ROASS-Procedure).

Date	Topic	Instructor
Jan 18	Course overview	DC
20	History of grasslands	DC
22	Grass/plant growth	DC
25	Grass/plant growth	DC
27	Flowering	DC
29	Mixtures of species	DC
Feb 01	Forage species	DC
02	Forage species	DC
05	Forage Utilization	DC
08	Forage Utilization	DC
10	Mid term 1 (15%)	
12	Plant/animal interaction/foraging behaviour	EM

	22	Digestive system of herbivores	EM
	24	Digestive system of herbivores	EM
	26	Voluntary feed intake	EM
Mar	01	Animal utilization	EM
	03	Mineral Nutrition	EM
	05	Metabolic disorders	EM
	08	Forage establishment	DC
	10	Mid term 2 (15%)	
	12	Grazing systems and management	EM
	15	Grazing systems and management	EM
	17	Extending the grazing season	EM
	19	Seed production	DC
	22	Seed production	DC
	24	Stand persistence	DC
	26	Forage conservation	DC
	29	Mid term 3 (15%)	
	31	Pasture water systems (Guest speaker)	TBD*
Apr	05	Greenhouse gas emissions	EM
	07	Water use in cattle production	EM
	09	Sustainability	EM
	12	Wildlife habitats	EM
	14	Grassland cattle production: global perspective	EM
	Apr 16	Mid term 4 (15%)	EM

*Guest lecturers to be determined

Important Dates

February 16 - 19	Mid-Term break: No classes or examinations in most faculties and schools
March 31	Last day for Voluntary Withdrawal from all Fall/Winter Term 2019/2020 and Winter Term 2020 courses Some faculties have courses with irregular withdrawal dates, see your faculty general office for information
April 02	Good Friday – University closed
April 16	Classes end in most faculties and schools.

Results on Performance Prior to Voluntary Withdrawal Deadline

Results on student performance will be provided before voluntary withdrawal date (approximately 50% of total grade).

Instructional Methods

A combination of instructional methods will be used in this course. Class lectures will be delivered via pre-recorded powerpoint presentations or live lectures where applicable. Guest speakers will also be invited to give lectures, enhancing the applicability of the information given.

Skeleton lecture notes will be posted to UM Learn 24hr before class each day (either pre-recorded presentations or slides only for live) and will be available to view/download for 2 weeks. Lectures will take place each day via Webex.

Laboratory sessions will be used for practical instruction on a variety of topics and delivered virtually. A combination of pre-recorded and live material will be utilized in labs. Instructions on assignments will be distributed during lab periods each week. One lab (March 1) will involve attendance of a virtual conference which will may run from 2-5:30pm. In light of the longer run time, the following lab will be shortened.

For both lectures and labs, students are expected to attend and engage in class discussions, ask/answer questions etc. A participation mark (5% of total grade) will be allocated at the end of term.

Lab Schedule

Date	Lab Content	Required Readings or Pre-Class Preparations	Evaluation
Jan 18	No lab		
Jan 25	Seeding experiments and forage and pasture seed identification	Lab manual	Laboratory write-up (7.5%) and Plant ID test (10%).
Feb 01	Legume seedling identification	Lab manual	Plant ID test
Feb 08	Grass seedling identification	Lab manual	Plant ID test
Feb 22	Mature Plant Identification (Legumes)	Lab manual	Plant ID test
Mar 01	Holos workshop		NA

Mar 08	Mature plant identification (grasses)	Lab manual	Plant ID test
Mar 15	Plant ID test	Greenhouse plants	10%
Mar 22	Stocking Density	Lab notes	5%
Mar 29	Grazing strategy assignment	Lab and class notes	10
April 05	Holos assignment	Lab notes	2.5%
April 12	Producer guest speaker		NA

Course Evaluation Methods

Test Descriptions

All quizzes/tests are closed book. No open book permitted. E-proctoring software may be utilized to ensure academic integrity. A combination of short and long answer questions

Due Date:	Assessment Tool	Value of Final Grade
Feb 10	Term Test 1	15%
Mar 10	Term Test 2	15%
Mar 29	Term Test 3	15%
April 16	Term Test 4	15%

Grade evaluations

The grade will be evaluated through a combination of examinations, assignments, class participation and discussion.

Grading: The following grading scale will be applied to this course.

Letter Grade	Percentage out of 100	Grade Point Range	Final Grade Point
A+	93-100	4.25-4.5	4.5
A	85-92	3.75-4.24	4.0
B+	78-83	3.25-3.74	3.5
B	72-77	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

Assignment Descriptions

Description of Assignments

1. Forage Lab - Seed Establishment
 - Laboratory (GH) establishment of perennials seeds.
2. Stocking density assignment
 - Calculations of stocking density required for proper pasture management
3. Grazing Plan –CHANGE to two smaller, individual assignments

Assignment Due Dates

Due Date:	Assessment Tool	Value of Final Grade
Feb 22	Lab report (group)	10%
March 29	Stocking density assignment (individual)	5%
April 12	Grazing strategy assignment (individual)	10%
April 16	Holos assignment (individual)	2.5%

Assignment Extension and Late Submission Policy

Late Assignments: Assignments must be submitted by the end of the day (4:30pm) on the date that it is due. There will be a 10% deduction for every 24-hour period the assignment is late.

Missed Assignments: Unexcused missed assignments will be given a grade of zero. Where assignments are missed and excused through written notification such as a doctor's certificate of illness, evidence of death in the family, or other circumstances that are beyond the control of the student, the student may be given the following options: 1) complete the assignment and receive the late assignment penalty as described above; 2) establish a new due date with the instructor and complete the assignment without penalty when handed in by the new due date; or, 3) the final grade will be determined by increasing the value of the final examine by the amount that would have been allocated to the missed assignment.

Missed Exams: Unexcused missed exams will be given a grade of zero. Where exams other than the final exam are missed and excused through written notification such as a doctor's certificate of illness, evidence of death in the family, or other circumstances that are beyond the control of the student, the student may be given the following options: i) re-schedule a date for the exam with the instructor and complete the exam at that time (the instructor has the option to set a different exam); or, 2) the final grade will be determined by increasing the value of the final examine by the amount that would have been allocated to the missed exam. If the final exam is missed and an appropriate excuse has been provided, another exam date will be set at the discretion of the instructor.

Assignment Grading Times

Generally, your test and other assignments will be marked and returned to you within one week. Quiz/test marks will be available on UM Learn. Additionally, students have one week following the return of an assignment or test in which to have the marks amended.

Schedule "A" – Policies and Resources for Students**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.

Student Accessibility Services website:

[Accessibility | University of Manitoba \(umanitoba.ca\)](http://umanitoba.ca)

520 University Centre

204 474 7423

Student_accessibility@umanitoba.ca

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 201 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 or by 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.

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 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 [Student health and wellness | University of Manitoba \(umanitoba.ca\)](http://umanitoba.ca/staff/Student%20Health%20and%20Wellness)

Katie.Kutryk@umanitoba.ca

469 University Centre

(204) 295-9032

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>

Notice Regarding 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.

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
http://umanitoba.ca/admin/governance/governing_documents/community/235.html

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