CR188

Range and Forage Management

3 Credits

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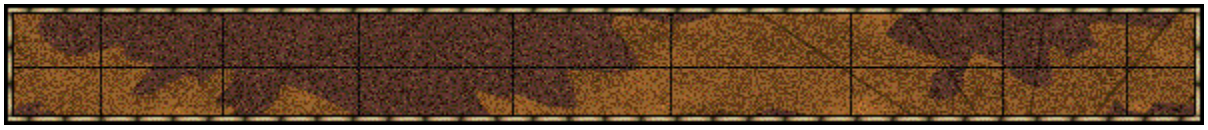

Range and Forage Management

Calendar Description

This course introduces the student to soil science and productivity; it focuses on plant structure and functions, grazing management and techniques for rangeland and pastures, and forage and field crop management.

Rationale

This is a required course for all majors in the Animal Science Technology program and also the Livestock and the Marketing Communications concentrations of Agribusiness.

Being able to locate land locations, understand the soil and land conditions, all grain harvesting and grazing processes, and the impact and kinds of weeds on the land enables the student in part to be able to manage farming or ranching.

Prerequisites

None

Co-Requisites

None

Course Learning Outcomes

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

1. explain how factors such as soil characteristics, climate and management practices impact plant productivity and underlying economic decisions.
2. locate on a map, legal land locations using the legal land system used in Alberta.
3. demonstrate the principles of establishment, harvest and storage for conserved feeds.
4. see the impact on selectivity of grazing and gain per animal or gain per acre by understanding how the different grazing systems, and fluctuations in stocking density/stocking rate.
5. describe the basic physiology and morphology of tame and rangeland species and how they respond to grazing.

6. identify common tame forage, annual crops, native rangeland and common pasture weeds.
7. perform resource inventory techniques and asses range and tame pasture conditions on rangeland.

Resource Materials

***Required Textbook(s)*:**

Alberta Sustainable Resource Development. (2005). Rangeland *health assessment for grassland, forest, and tame pasture*. Pub. No. T/044.

Alberta Agriculture (1983). *Alberta forage manual* (2nd ed.). Print media branch. Alberta Agriculture. Agdex 120/20-4.

CR 188 Course Pack available through the Lakeland College Bookstore, Vermilion.

***Reference Textbook(s)*:**

Agriculture & Agri-food Canada. (1998). *The Canadian system of soil classification* (3rd ed., p. 187). Ottawa: NRC Research Press.

Alberta Agriculture. (1988). *Silage manual*. Print medial branch, Alberta Agriculture. Agdex 120/52-2.

Holechek, J. L., Pieper, R. D., & Herbel, C. H. (2011). *Range management: Principles and practices* (6th ed.). Upper Saddle River, NJ: Pearson Education Inc.

Irving B. (2014). *Undergraduate range management exam* (URME) study guide. Edmonton. Canada: ENCS 406:University of Alberta.

Tannas, K. (2001). *Common plants of western rangelands Vol. 3 Forbs*. Edmonton, AB, Canada: Alberta Agriculture.

Tannas, K. (2001). *Common plants of western rangelands Vol. 1 Grasses and grass-like species*. Edmonton, AB, Canada: Alberta Agriculture.

Tannas, K. (2001). C*ommon plants of western rangelands Vol. 2 Tree and woody species*. Edmonton, AB, Canada: Alberta Agriculture.

Conduct of Course

This course consists of approximately 42 hours of lecture that is a blend of notes, discussion and practical skill development. Each topic discussion revolves around producer practices and the economics as to why producers may choose those practices. There is a combination of in class and take-home assignments the students have to complete.

Laboratory Portion
The lab portion of the course is 28 hours which focuses on developing plant identification skills so students can identify common forages, annual crops and rangeland species. Throughout the course of the semester students are expected to preform various range management calculations. There is a tentative field trip that is scheduled, which covers techniques for pasture assessments on tame and native pastures (Date and time is to be decided). There is a lab quiz at the start of class covering the previous week's plant species as well as other lab assignments and write-ups. The lab will be open, and the mounts are available for students to study independently, with possible teacher-organized study sessions if required. Make-up quizzes are discussed later on.

Evaluation Procedures

Quizzes & Assignments	20%
Participation	5%
Midterm	20%
Final Exam	30%
Lab Assignments & Quizzes	25%
Total	100%

Make-up Exams/Quizzes
Make-up exams are given only for previously discussed, and excused absences are expected to be made up as soon as possible (prior to the next class period if possible). In case of an emergency, call the instructor the day prior. The instructor reserves the ability to hold pop quizzes throughout the semester with no prior notification.

Late Assignments
Assignments are due on the date and time specified by the instructor. After that specified time late assignments receive a grade of zero.

Academic Integrity
Students are expected to follow the Lakeland College policy for academic integrity. Please refer to the 2014/2015 School of Agriculture and Environmental Sciences Student Handbook, Section 22 – Rights and Responsibilities.

Grade Equivalents and Course Pass Requirements

A minimum grade of D (50%) (1.00) is required to pass this course.

Letter	F	D	D+	C-	C	C+	B-	B	B+	A-	A	A+
Percent Range	0-49	50-52	53-56	57-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-100
Points	0.00	1.00	1.30	1.70	2.00	2.30	2.70	3.00	3.30	3.70	4.00	4.00

Students must maintain a cumulative grade of C (GPA - Grade Point Average of 2.00) in order to qualify to graduate.

A grade of D is considered a minimal pass equivalent to a grade point of 1.00. Agriculture students must maintain a cumulative average grade of C (GPA 2.00) in order to qualify for graduation. Students with a cumulative GPA of less than 1.00 face suspension, and students with a cumulative GPA less than 2.00 are placed on academic probation. Students may be allowed the opportunity to repeat minimal pass courses or to undertake a maximum of one special project to achieve a cumulative GPA of at least 2.00 to meet graduation requirements.

Attendance

Classroom and laboratory attendance is considered vital to the learning process and as significant to the students' evaluation as examinations and reports, therefore absenteeism is recorded.

a. Students having a combination of excused and/or unexcused absence of 20 percent or higher for the scheduled course hours can be required to withdraw and would then automatically receive a "RW" (required withdrawal) for the course, regardless of any other evaluation results. (RW is a failing grade).
b. An excused absence is one that is verified with your instructor. Verification should be prior to the absence or the next class day following the absence. Verification of the absence may take the form of a note from your doctor/College nurse regarding illness, or a note from another instructor regarding a field trip or other activity, or authorization by your instructor following an in-person meeting. Be sure to contact your instructor and ask what they will require from you as verification for each absence. An unexcused absence is anything NOT verified by the instructor prior to the absence or the next class day following the absence.

NOTE: Any exceptions to the above attendance policy (e.g. timetable conflicts, work-related issues) must be approved in writing by the Department Chair prior to the beginning of the course.

It is the students' responsibility to know their own absentee record.

Normal hours are 8:30 a.m. to 6:30 p.m., with potential for evening courses, exams or extended field trips. Students are expected to be available for classes during these times.

Course Units/Topics

Introduction to Soil Science and Productivity

a) Basic Soil Components & Texture
b) Soil Orders & Classification of Western Canada
c) Soil Quality
d) Problem Soils & Soil Management

Plant Structure and Functions

a) Plant Physiology & Morphology
b) Plant Ecology
c) Nutrient Cycles
d) Common Vegetation Communities of Western Canada

Grazing Management and Techniques for Rangelands and Pastures

a) Rangeland Types of Western Canada
b) Grazing Management Strategies
c) Rangeland management Principles and Practices
d) Rangeland Inventory Assessments
e) Stocking Rates, Stocking Density & Considerations
f) Selection of Grazing System
g) Rangeland Improvements
h) Management for Multi-uses and Wildlife Considerations

Forage and Field Crop Management

a) Intro into Forages
b) Forage Establishment
c) Cover Crops and Annual Forages
d) Forage Fertilization & Pest Management
e) Nutrient Cycles & Manure Management
f) Forage Harvest & Conservation
    a) Silage
    b) Hay
    c) Pasture
g) Forage Quality & Pricing
h) Anti-quality Factors

Laboratory Units/Topics

The laboratory consists of topics that fit from lecture. They cover the hands-on learning that cannot be covered in the span of a lecture. Labs run every alternating week so between each lab or lab test there is two weeks to study and work with the plant material. Students use identification techniques to help learn and classify common rangeland and tame forage species that are used to grazing or forage production.

Tentative Lab Schedule

1. Soil Texturing, Structure & Legal Land Location Mapping
2. Rangeland Assessments (in field work)
3. Common Rangeland Plant Identification & Start of Clipping Demo
4. Common Rangeland Plant Identification (Plant Test)
5. Common Rangeland Plant Identification (Plant Test)
6. Final Plant Test, Hay & Silage Quality and Clipping demo analysis

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