

COURSE SYLLABUS

Rangeland Ecosystem Assessment and Monitoring (REWM 4330)

Fall Semester 2017

- M 11:00–11:50 AM – AG 229 (On occasion we may meet from 11:00 AM–12:50 PM)
- M (field lab) – 1:10–5:00 PM – Field Trip or AG 229
- W (computer lab) – 11:00 AM–12:50 PM – AG 229

Instructor Information:

Instructor: Dr. Jeff Beck

Phone: (307)-766-6683

Office: AG 2005

E-mail: jbeck@uwyo.edu

Office Hours: Tuesday 10:00 AM–2:00 PM

Wednesday 1:00–3:00 PM

Graduate Teaching Assistant: Matt King (MS Student in Soil Science)

Office: AG 2015

E-mail: mking27@uwyo.edu

Office Hours: Thursday 11:30 AM–1:30 PM

Prerequisites:

REWM 2400 and STAT 2050 or 2070. Concurrent prerequisite enrollment with permission.

Course Description:

Rangeland Ecosystem Assessment and Monitoring is a required course for undergraduate students majoring or minoring in Rangeland Ecology and Watershed Management and is very applicable for students majoring in other related disciplines. The official course description is "Assessment, monitoring, and analysis of rangeland ecosystems and processes. Students integrate sampling design, measurements of vegetation attributes, indicators of rangeland health, ecological site information, riparian and wildlife habitat values, utilization, and statistical applications to evaluate rangeland resource integrity and sustainable use. Students collect, analyze, and report data using current technologies. Consequently, there will be an emphasis on quantitative and theoretical concepts forming the basis of rangeland monitoring and assessment including appropriate measurements, analyses, applications, and reporting results. The course is fundamentally designed as a field course where we will collect vegetation and other samples from the field and then summarize, analyze, and report our findings. We will have indoor labs as the semester progresses or weather become unsuitable for field sampling.

Disability Statement:

If you have a physical, learning, or psychological disability and require accommodations, please let me know as soon as possible. You must register with, and provide documentation of your disability to University Disability Support Services (UDSS) in SEO, room 330 Knight Hall.

Writing Statement:

It is vital to your academic and career development that you be able to effectively convey your knowledge through writing. To reinforce and refine your writing skills, all required REWM courses will include some writing assignments that will assess proper composition (e.g., grammar, punctuation) as part of the grade. You are encouraged to consider accessing numerous resources on campus that are dedicated to providing assistance for enhancing student writing skills (e.g., the Ellbogen writing center (766-5250), the College of Agriculture and Natural Resources academic success tutors (766-3046), and the Student Educational Opportunity office (766-6189)).

Objectives/Outcomes/Standards:***Course Objectives***

1. To gain an understanding of the central concepts and theory used in rangeland ecosystem assessment and monitoring
2. To gain proficiency in the use of field sampling equipment and techniques used to measure rangeland vegetation
3. To become competent in statistical, graphical, and reporting approaches to describing and summarizing rangeland vegetation measurements
4. To encourage further learning about rangeland ecosystem assessment and monitoring

Classroom Policies

1. Students are expected to: be on time, participate in field and in-class labs, read literature before class, and participate in discussions
2. Academic honesty and integrity are University Policies. Failure to maintain these standards may result in a failing grade and/or referral to the Dean of students
3. Derogatory language or behavior based on race, gender, religion, political affiliation, sexual orientation, or physical or mental abilities is not appropriate for class

Student Responsibilities

1. Participate fully in all class discussions, field labs, and in-class labs
2. Read assigned material before class
3. Turn in assignments on the respective due dates

Attendance/Participation Policy:

1. Absences result in poor performance on assignments and exams, so please attend each class
2. University sponsored absences are cleared through the Office of Student Life
3. Other absences must be cleared through me

Academic Honesty:

The University of Wyoming is built upon a strong foundation of integrity, respect and trust. All members of the university community have a responsibility to be honest and the right to expect honesty from others. Any form of academic dishonesty is unacceptable to our community and will not be tolerated [from the UW General Bulletin]. Teachers and students should report suspected violations of standards of academic honesty to the instructor, department head, or dean. Other University regulations can be found at: <http://uwadmnweb.uwyo.edu/legal/universityregulations.htm>)

Texts (PDFs posted on WyoCourses website) and Readings:

Required Textbooks (Note: I will provide required sections from these 4 manuals in separate assignments). You will be responsible to read this material and will be tested accordingly.

Coulloudon, B., K. Eshelman, J. Gianola, N. Habich, L. Hughes, C. Johnson, M. Pellant, P. Podborny, A. Rasmussen, B. Robles, P. Shaver, J. Spehar, J. Willoughby. 1999 (revised). **Utilization studies and residual measurements**. Interagency Technical Reference 1734-3. USDI Bureau of Land Management, National Applied Resource Sciences Center, Denver, Colorado. BLM/RS/ST-96/004+1730.

Coulloudon, B., K. Eshelman, J. Gianola, N. Habich, L. Hughes, C. Johnson, M. Pellant, P. Podborny, A. Rasmussen, B. Robles, P. Shaver, J. Spehar, J. Willoughby. 1999 (revised). **Sampling vegetation attributes**. Interagency Technical Reference 1734-4, USDI Bureau of Land Management, National Applied Resource Sciences Center, Denver, Colorado. BLM/RS/ST-96/002+1730.

Herrick, J. E., J. W. Van Zee, K. M. Havstad, L. M. Burkett and W. G. Whitford. 2009. Monitoring manual for grassland, shrubland, and savanna ecosystems. **Volume I: Quick Start**. USDA - ARS Jornada Experimental Range, Las Cruces, New Mexico.

Herrick, J. E., J. W. Van Zee, K. M. Havstad, L. M. Burkett and W. G. Whitford. 2009. Monitoring manual for grassland, shrubland, and savanna ecosystems. **Volume II: Design, supplementary methods and interpretation**. USDA - ARS Jornada Experimental Range, Las Cruces, New Mexico.

The Jornada Experimental Range – Monitoring and Assessment Website

<http://jornada.nmsu.edu/monit-assess>

Additional Readings

To enhance your educational experience, I will provide relevant, copyrighted readings on the REWM 4330 course website. You will be responsible to read these articles and will be tested accordingly.

Course Requirements/Assignments:***Grading Standards***

Grades will be assigned on the basis of percentage of total points earned. I am assigning grades based on a straight-letter grading system.

- A = >90%
- B = 80–89%
- C = 70–79%
- D = 60–69%
- F = <59 %

Late Assignments

Reports and assignments are due at the beginning of class on assigned due dates. Reports and assignments will lose a half letter grade if submitted later that day, and will not be accepted more than 1 day past the due date. I will make accommodations only for valid emergencies.

Assignments (Note: I may provide some extra points via in-class assignments)

Assignment	Number	Point Value	Total Points
Data provided by groups*	8	5	40
Problem sets/worksheets	7	10 (4) or 20 (3)	100
15-pt short assignments	2	15	30
30-pt short assignments	6	30	180
50-pt short assignments	2	50	100
Excel lab reports (memos)	2	100	200
First exam	1	100	100
Take-home exam (w/first exam)	1	50	50
Second exam	1	100	100
Third exam	1	100	100
Total			1,000

*I will deduct 10 points per lab assignment for those groups that do not turn in their data on time.

Course Outline:

Tentative Schedule			
Week*	General Topic	Specific Topic	Assignment**
1–Aug 30	Sampling/Stats	Basics of sampling and stats	<i>Sampling PS (20)</i>
2– Sep 4, 6	Excel basics	Labor Day (No Class AND No Field Trip) and Wednesday (Computer Lab Only)	<i>Excel basics PS (20)</i>
3–Sep *11, 13	ESDs	Ecological Site Descriptions and Rangeland Health	ESDs/Rng Health (30)
4–Sep *18, 20	Cover	Herbaceous cover	<i>Cover PS (10)</i> Cover Memo (100)
5–Sep 25, 27		TWS Meeting – Albuquerque, New Mexico	
6–Oct *2, 4	Riparian assess	Riparian assessment and SamplePoint; <i>Take Home Questions for Exam 1</i>	Ripar (15), SamPt (30)
7–Oct 9, 11	Exam 1 and Herbaceous Production	Exam 1 – Oct 9 ; Herb productivity (Oct 9 and 11)	Exam 1 (100 in class and 50 take home); <i>Herb production PS (20)</i> ; Herb production (50)
8–Oct 16, 18	Utilization	Livestock utilization	<i>Utilization PS (10)</i> Utilization Memo (100)
9–Oct *23, 25	Fuels	Grass samples; Fuel estimation for fire modeling (mid-term grades due Oct 25)	Fuel modeling (30)
10–Oct 30, Nov 1	Wildlife habitat	Deer winter range Carrying Capacity + Frequency Lab	Wildlife habitat (50)
11–Nov 6, 8	Exam 2 and Frequency	Exam 2 – Nov 6 ; Grass Ht:Wt Curves; Frequency/ground cover	Exam 2 (100) Grass Ht:Wt (15) <i>Freq. PS (10)</i> Frequency (30)
12–Nov 13, 15	Biodiversity	Diversity and evenness indices	<i>Biodiversity PS (10)</i> Biodiversity (30)
13–Nov 20 (only)	Quadrat shape/size	Quadrat Size and Shape Nov 22 Lab Cancelled – Thanksgiving Break (W-F)	
14–Nov 27, 29	Res selection	Forage & habitat selection by animals; Exam Review	Res selection (30)
15–Dec 4, 6	Exam 3	Exam 3 – Dec 4 (Dec 6 – 2017 Wyoming TWS Mtg.)	Exam 3 (100)
16 and 17–Dec 13-19 (Finals Weeks)		Finals Weeks (NO Exam)	

Bolded Mondays are field trips

*Labs held on the USDA Medicine Bow-Routt National Forest.

**Assignment distributed this week; due dates will be assigned at this time.