

COURSE SYLLABUS
(September 2015)

Rangeland Ecosystem Assessment and Monitoring (REWM 4330)

Fall Semester 2015

- M 11:00–11:50 AM – AG 41
- M (field lab) – 1:10–5:00 PM – AG 1030 [or field]
- W (computer lab) – 11:00–11:50 AM – College of Business 108

Instructor Information:

Instructor: Jeff Beck
Phone: (307)-766-6683
Office: AG 2005
E-mail: jlbeck@uwyo.edu
Office Hours: Tuesday 10:00 AM–2:00 PM
Wednesday 12:00–2:00 PM

Graduate Teaching Assistant:
Taylor Crow (PhD Candidate in REWM)
Office: AG 20
E-mail: tcrow3@uwyo.edu
Office Hours: Th 10:00 AM–12:00 PM

Prerequisites:

REWM 2000, REWM 2500, and STAT 2050 or 2070. Concurrent enrollment in REWM 2500 and STAT 2050/STAT 2070 is permissible

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 a separate readings list). 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. However, I will make accommodations 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
15-pt short assignments	2	15	30
30-pt short assignments	6	30	180
Excel lab reports	4	100	400
First exam (50 pts take home)	1	150	150
Second exam	1	100	100
Third (final) 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:**Preliminary Schedule**

Week*	General Topic	Specific Topic	Assignment**
1–Aug *31, Sep 2	ESDs	Ecological Site Descriptions and Rangeland Health	ESDs/Health (30)
2– Sep 7, 9		Labor Day (No Class AND No Field Trip) and Wednesday (No Computer Lab)	
3–Sep *14, 16	Cover	Basics of sampling and stats; Herbaceous cover	Cover (100)
4–Sep *21, 23	Riparian assess	Riparian assessment and SamplePoint	Ripar (15), SamPt (30)
5– Sep 28, 30	Phytomass	Herbage productivity; Grass Samples; <i>Take Home Questions for Exam 1</i>	Herb production (100)
6–Oct 5, 7		Exam 1 – Oct 5; Grass Ht:Wt (15) on Oct 7	Exam 1 (150; 100 in class and 50 take home)
7–Oct *12, 14	Fuels	Fuel estimation for fire modeling	Fuel modeling (30)
8–Oct 19, 21	Wildlife habitat	Mule deer winter range carrying capacity + Frequency	Util (100)
9–Oct 26, 28	Utilization	Livestock utilization (mid-term grades due Oct 28)	Wildlife habitat (100)
10–Nov 2, 4	Frequency	Frequency/ground cover; quadrat shape/size (Wyoming SRM meeting in Laramie)	Freq (30)
11–Nov 9, 11	Exam	Exam 2 – Nov 9	Exam 2 (100); Grass Ht:Wt
12–Nov 16, 18	Biodiversity	Diversity and evenness indices	Biodiversity (30)
13–Nov 23 (only)	Catch up	<i>Thanksgiving Break – 11:00–11:50 AM on M</i>	
14–Nov 30, Dec 2	More stats	More stats	
15–Dec 7, 9	Res selection	Forage and habitat selection by animals	Res selection (30)
16–Dec 18	Final Exam	Final Exam – 10:15 AM–12:15 PM	Final Exam (100)

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.