Great Basin College
Course Syllabus

NRES 251

Course Title: Rangeland Measurements and Monitoring **Credits: 4.0**

Semester Offered: Fall 2008

Instructor Name: Tracy Shane

Class Schedule: T, TH 4:00-5:15
Lab W 1:00-5:00

Office Hours: Tuesday 2:00-4:00pm
Thursday 1:00-4:00pm

Email Address: tracyb@gwmail.gbcnv.edu

Office Phone: 753-2344

Format: Lecture, Lab, Field Trips, Web-enhanced

Cell Phone: 934-5646

Course Objectives:

This course is designed to reinforce theoretical concepts learned in NRES 241 Principles of Range Management and provide students with hands-on application of these concepts. This course also provides students with the opportunity to practice rangeland monitoring techniques and develop skills in plant identification. These skills will prepare students for future careers as ranch managers, rangeland technicians, rangeland management specialists, natural resource specialists, and a variety of other positions with government agencies, conservation organizations, and ranches, and private firms.

Expected Learner Outcomes:	Outcome Measurements:
• Evaluate considerations concerning livestock stocking rates	Lab Assignment, Quizzes, Tests
• Identify key areas and create lists of key species for several rangeland vegetation types	Lab assignments
• Compare and contrast various methods for monitoring rangeland vegetation	Quizzes and Tests
• Perform various methods for monitoring vegetation and summarize data	Lab assignments
• Demonstrate and interpret rangeland inventory and monitoring methods/systems	Lab assignments, Quizzes, Tests
• Perform basic statistical analysis of data collected	Lab assignments, quizzes, tests
• Develop an allotment monitoring system, following criteria given in lecture and labs	Final Project

Student Learning Assessment:

Assessment Devise: Standard College grading scale will be used. The following items will be graded accordingly and will carry the assigned grading values:

A) Lab write-ups (10 labs@30 pts each)	300 pts
B) Quizzes (10 quizzes @ 20 pts each)	200 pts
C) Tests (2 tests and 1 final exam @ 100 pts each)	300 pts
D) Final Project	100 pts

Total 900 pts

**Approximately 10-20% of the test material will be derived from assigned readings with the remainder based on lecture notes and labs.

Passing grades for this course range from "A" through "D". Grade values are as follows:
A 90-100% B 80-89% C 70-79% D 60-69% F 59% or less

Course Expectations and Academic Dishonesty

Academic Dishonesty: Plagiarism and/or cheating will not be tolerated in any fashion. Students are expected to develop their own skills through the process of learning and critical thinking. Students should make themselves aware of the "Student Conduct Policy" on page 29-30 of the Great Basin College 2008-2009 general catalog.

Attendance: Attending all class sessions and field-trips will be essential for, not only each student's success, but the success of the entire class. Students will be expected to be engaged and participate in all class discussions, class projects, and field-trips and all student participation grades will be recorded accordingly.

Absences arranged with instructor prior to missed class may be considered an authorized absence at the discretion of the instructor. With authorized absences, it is the responsibility of the student turn in any due assignments prior to the absence, arrange for any make-up work, and get class notes from another student. In the event of an unauthorized absence (no phone call to instructor prior to missing class), the student will not be able to make-up work, quizzes, or tests missed that day.

Assignments: Course work is due on the day it is assigned. All lab assignments will be due at the beginning of the following lab class. Assignments turned in late will drop one letter grade each subsequent class period. This means that an "A" quality assignment turned in more than 3 class meetings late would receive an "F".

Additional Considerations:

Prerequisite: NRES 241 - Introduction to Principles of Range Science

Required Field Gear: You should purchase a clipboard for this class to use during the lab assignments. The rest of the field equipment will be provided for your use.

Required reading:

Nevada Rangeland Monitoring Handbook, Second Edition, 2006

Sampling Vegetation Attributes, Interagency Technical Reference 1734-4

Utilization Studies and Residual Measurements, Interagency Technical Reference 1743-3

Riparian Area Management, A Users Guide to Assessing Proper Functioning Condition and Supporting Science for Lentic Areas, TR 1737-16, revised 2003

Riparian Area Management, A Users Guide to Assessing Proper Functioning Condition and Supporting Science for Lotic Areas, TR 1737-15, 1998

Monitoring the Vegetation Resources in Riparian Areas, RMRS – GTR— 47, April 2000.

Field trips (labs) will be a part of this course. Field trips will be within or in the vicinity of Elko County, including U.S. Forest Service managed property, Bureau of Land Management managed property, and privately owned and managed rangeland property.

Field trips will occur on Wednesdays from 1:00pm to 5:00pm, until October 29. As weather is always a consideration during this time of the year, students are advised to dress appropriately for working outside in all types of weather.

Use of computers in this course: This course will make use of WebCampus. To log in, go to webcampus.gbcnv.edu. Your WebCampus ID is your Great Basin College email address ID. If you don't have a GBC email address or don't remember your address go to the Technology Help Desk helpdesk@gwmail.gbcnv.edu, or call 775-753-2167. Passwords will be sent by mail to students who register for their course(s) 5 days before the semester begins. If you register after this time or did not receive a letter by mail, contact the Help Desk as soon as possible.

I do not have the capacity to help you with computer-technical issues. You will receive much faster and more knowledgeable assistance from the Help Desk. Please go to them for technical assistance. You bear the responsibility for getting the technical aspects of the course to function properly so that you can participate fully.

Special needs: Great Basin College is committed to providing equal educational opportunities to qualified students with disabilities in accordance with state and federal laws and regulations, including the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. A qualified student must furnish current verification of disability. The ADA Officer (Julie G. Byrnes) will assist qualified students with disabilities in securing the appropriate and reasonable accommodations, auxiliary aids, and services. For more information or further assistance, please call 753-2271.

Course Catalog Description:

NRES 251 Rangeland Measurements and Monitoring

This course is designed to instruct students in livestock and plant management on rangelands. This course will provide instruction in the most common and acceptable rangeland monitoring systems. Students will participate in actual rangeland monitoring and plant / data collection.

Class Schedule:

The class schedule is subject to change with prior notification by instructor.

Week	Date	Subject	Assignments
1	8-26	First day of class – review syllabus, Intro to range monitoring	
	8-27	Lab 1 – Intro to plant ID	
	8-28	Setting objectives and relation to monitoring	
2	9-2	Review plant ID, Cover	
	9-3	Lab 2 - Plant ID, determining ecological sites, step-point cover	Lab 1 due
	9-4	Review ecological sites, review Cover - Quiz	
3	9-9	Statistics basics for lab #2 homework	
	9-10	Lab 3 - Cover, line intercept, rapid ocular estimate	Lab 2 due
	9-11	Statistical considerations, mean comparisons, t-tests	
4	9-16	Density, frequency, nested frequency	
	9-17	Lab 4 – Density, frequency, seeding establishment	Lab 3 due
	9-18	Using GPS, UTM, topo maps - Quiz	
5	9-23	Canopy Gap, Vegetation structure / visual obstruction	
	9-24	Lab 5 – Cover, point intercept – NNSG plots	Lab 4 due
	9-25	Key areas, Key species - Quiz	
6	9-30	Proper functioning condition – lentic areas	
	10-2	**Test 1**	
	10-3	**FRIDAY** Lab 6 – PFC all day	Lab 5 due
7	10-7	Stream monitoring (Greenline, Riparian shrubs, channel)	
	10-8	Lab 7 – Stream Survey Allen Jennay - NDOW	Lab 6 due
	10-9	Biomass & percent composition - Quiz	
8	10-14	Pinyon – Juniper transects, height, age classes, diameter	
	10-15	Lab 8 - Tree cruising, pinyon-juniper zig-zag	Lab 7 due
	10-16	Biodiversity and Utilization - Quiz	
9	10-21	Stubble height, utilization by key species	
	10-22	Lab 9 - Utilization, stubble height, utilization mapping	Lab 8 due
	10-23	Use pattern mapping, Actual use data, Woody species use, grazing distribution	
10	10-28	**Test 2**	
	10-29	Lab 10 - Biomass, robel pole, soil site stability, canopy gap, point intercept, weed inventory	
	10-30	Grazing response index - Quiz	Lab 9 due

11 Quiz	11-4	Designing monitoring plans, sampling plans	
	11-6	**No Class** – NCA Convention Winnemucca	
12	11-11	**No Class** – Veteran's Day	
	11-13	Wildlife Monitoring- Quiz	Lab 10 due
13 Quiz	11-18	Endangered species monitoring, photo monitoring	
	11-19	Weed mapping, Collecting weather data for rangeland studies	
14 Quiz	11-25	Soils, crusts and soil stability, Soil pH, soil texture, soil organic matter	
	11-27	Water quality monitoring	
15 Quiz	12-2	Lecture – Remote sensing	
	12-4	Lecture – Cooperative Monitoring	
16	12-9	**Final Exam**	