NRM 4314 and 5303
Range Watershed and Hydrology
Spring 2015

Professor:
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Office Hours: Monday Wednesday 2:30-4:30; Tuesday and Thursday 1:30-3:00; other times by appointment

Course description:
Discussion of basic hydrologic processes, watershed drainage on rangeland watersheds, networks and stream flow characteristics, influences of range vegetation on watershed, and management of rangeland to optimize watershed benefits.

Class meetings:
Monday Wednesday and Friday 12:00-12:50

Tentative Course Outline:

Lecture #	Topic
1	Introduction
2	Hydrologic Cycle
3-6	Drainage Basins
7-11	Precipitation
12-14	Evapotranspiration
15-16	Interception
17-21	Infiltration
22-25	Hillslope processes and runoff
26-28	River Channels
	Final project due (Wednesday May 13th at 2:30)

Learning Objectives
1. Students will learn to define and list all parts of the hydrologic cycle and discuss how each part interacts to form the whole cycle.

2. Students will develop an understanding of watersheds and watershed properties, including uplands, riparian areas, and river channels.
3. Students will incorporate all the above aspects in understanding the concept of water balance.

Recommended Text:
Dunne, T. and L. Leopold. Water in Environmental Planning

Other Required Materials
Two colored pencils one blue and one red
Regular pencil
7 minute topographic map of Plata NE and Jordan Gap. You can get each map through Front Street Books.

Class Organization:
1. Roll will be taken during each class meeting. The SRSU catalog states "The instructor may, at his discretion, drop a student from a course when the student has a total of nine absences. An absence is defined as non-attendance in fifty minutes of class. Non-attendance in a one and one-half hour class will constitute one and one-half absences."
2. Cheating on any exam or assignment will result in an F for that material and possible expulsion from the class with a grade of F.
3. Missed exam policy: No make-up exams will be provided for an unexplained missed exam. If you miss an exam without an excused absence, you will receive a score of 0 for that exam. Make-up exams will provided for any authorized missed exams, but must be completed within one week of the original exam date.
4. Late Homework: DO NOT TURN YOUR HOMEWORK IN LATE!
5. If you miss a lecture, you may obtain notes from a willing classmate. Handouts, and assignments can be obtained from me.
6. Notes, assignments and grades will be made available on Blackboard.
7. It is Sul Ross State University Policy to provide reasonable accommodation to students with disabilities. If you would like to request such accommodations because of physical, mental, or learning disability, please contact the ADA Coordinator for Program Accessibility.

Grades:
Field trip participation @ 50 points each 100 points

During the semester there will be four field trip opportunities. The first will be to Alamito Creek south of Marfa to look at watershed characteristics. The second will be to the 02 ranch to discuss and work on riparian restoration. The third will be to various spring and riparian areas to plant Eastern Gamagrass. The fourth will be to Independence Creek to look at and measure river channel characteristics. You may go on all four field trips. You must go on two of them.

Assignments 100 points

Variable point assignments will be made during the semester. They must be completed and turned in by the due. After the assignment is graded it will be returned to you.

ATTENTION: Homework is weighted the same as your midterm and final project. It is 1/3 of your grade. Every time you fail to complete an assignment your homework average drops nearly a letter grade! Graduate students will have different assignments from undergraduates.

Final Project 100 points

You will need to complete one of the following for a final project.

1) Write a 10 page research paper on a topic focusing on some aspect of watershed management. This paper will be well researched with sources from peer reviewed journals and books. It should follow the style of the Rangeland Ecology and Management (CBE style) and be in 12 pt font and double spaced.
2) Complete a GIS project that involves delineating watershed and flow boundaries and characteristics of the watershed.
3) Complete 30 hours of volunteer work that relates to water and watersheds.

Graduate Students: For graduate credit there will be an extra assignment. You must complete project 2 above, and select project 1 or 3 for the additional project.

Grade assignment: <60 = F; 60-69 = D; 70-79 = C; 80-89 = B; 90-100 = A

Program Learning Outcomes

The ranch plan in the lecture is designed to meet B.S. PLO 3 and PLO 5. For the M.Ag. degree this class is designed to meet PLO 3 and for the M.S. degree this class is designed to meet PLO 3.

Program Learning Outcomes for the B.S. in Natural Resource Management

The graduating student will demonstrate that he/she is able to:

1. Identify species of wildland plants and wildlife common to the western United States and describe their natural history.

2. Demonstrate knowledge of the elements of an ecosystem.

3. Communicate about natural resources and conservation both verbally and in writing.

4. Conduct range and wildlife inventories in a team setting.

5. Apply knowledge about elements of an ecosystem into an appropriate conservation management plan.