

**NRM 4314**  
**Range Watershed and Hydrology**  
**Fall 2021**

**Professor:**

Dr. Carlos E. Gonzalez

Office: RAS 116

Office Hours: 8:00 AM – 10:00 AM Monday & Tuesday

\*If you need to see me and have any issues with the virtual office through blackboard, please let me know. We can set a teams meeting.

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**Course description:**

Discussion of basic hydrologic processes, watershed drainage on rangeland watersheds, networks, and streamflow characteristics, influences of range vegetation on the watershed, and rangeland management to optimize watershed benefits.

**Class meetings:**

Web

**Tentative Course Outline:**

Lecture #	Topic
1	Introduction
2	Hydrologic Cycle and Water Balance
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

**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 Texts:**

Dunne, T. and L. Leopold. Water in Environmental Planning;  
Leopold, L. A View of the River.

**Class Organization:**

1. Late Homework: **DO NOT TURN YOUR HOMEWORK IN LATE!**
2. Notes, assignments, and grades will be made available on Blackboard.
3. 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:**

*Assignments 150 points*

Variable point assignments will be made during the semester. They must be completed and turned in by the due date. After the assignment is graded, it will be returned to you. **ATTENTION:** Homework is weighted your final project. It is over 1/3 of your grade.

*Every time you fail to complete an assignment, your homework average drops nearly a letter grade!*

*Final Project 100 points*

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

- 1) Write a 5-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 Rangeland Ecology and Management (CBE style) and be in 12 pt font and double spaced.
- 2) Complete a GIS project that involves using the hydrologic functions of ArcGIS to delineate a watershed, show flow boundaries, and characteristics of the watershed. Summarize the project in a poster.
- 3) Complete 15 hours of volunteer work that relates to water and watersheds.

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

- Student Learning Outcomes for the B.S. in Natural Resource Management
- Students will identify species of wildland plants and wildlife common to the western United States and describe their natural history.
- Students will be able to demonstrate knowledge of the elements of an ecosystem.

- Students will be able to communicate about natural resources and conservation both verbally and in writing.