

**NRM 4314**  
**Range Watershed and Hydrology**  
**Spring 2023**

Professor: Kevin Urbanczyk, kevinu@sulross.edu, 432-837-8110 WSB 320

Office hours: TR 8:30-10:30; W 8:30-9:30, R 2-3

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:

MWF 10-10:50

Tentative Course Outline:

Lecture #	Topic
1	Introduction
2-4	Hydrologic Cycle and Water Balance
5-10	Drainage Basins
11-18	Precipitation
19-22	Evapotranspiration
23-25	Interception
26-33	Infiltration
34-39	Hillslope processes and runoff
39-45	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. Be aware that 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 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 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.

NOTE: Grading is weighted towards your final project. It is over 1/3 of your grade.

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 be able to 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.

SRSU Disability Services. Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. Alpine students seeking accessibility/accommodations services must contact Mary Schwartze Grisham, M.Ed., LPC, SRSU's Accessibility Services Coordinator at 432-837-8203, or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu) Our office is located on the first floor of Ferguson Hall – room 112, and our mailing address is P.O. Box C-122, Sul Ross State University, Alpine, Texas, 79832.