

**NRM 4314**  
**Range Watershed and Hydrology**  
**Spring 2025**

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

Office hours: TR 8:30-10:30; W 8:30-9:30

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 RAS 129

Tentative Course Outline:

Week	Date	Lecture	Topic
1	1/15/2025	1	Introduction
	1/17/2025	2	Hydrologic Cycle and Water Balance
<b>2</b>	<b>1/20/2025</b>		MLK - no class
	1/22/2025	3	
	1/24/2025	4	
3	1/27/2025	5	Drainage Basins
	1/29/2025	6	
	1/31/2025	7	
4	2/3/2025	8	
	2/5/2025	9	
	2/7/2025	10	
5	2/10/2025	11	Precipitation
	2/12/2025	12	
	2/14/2025	13	
6	2/17/2025	14	
	2/19/2025	15	
	2/21/2025	16	
7	2/24/2025	17	
	2/26/2025	18	
	2/28/2025	19	Evaopotranspiration
8	3/3/2025	20	
	3/5/2025	21	
	3/7/2025	22	
9	3/10/2025	23	Interception
	3/12/2025	24	
	3/14/2025	25	
<b>10</b>	<b>3/17-3/21</b>		Spring Break
11	3/24/2025	26	Infiltration
	3/26/2025	27	
	3/28/2025	28	
12	3/31/2025	29	
	4/2/2025	30	
	4/4/2025	31	Hillslope Processes and Runoff
13	4/7/2025	32	
	4/9/2025	33	
	4/11/2025	34	
14	4/14/2025	35	
	4/16/2025	36	
	4/18/2025	37	River Channels
15	4/21/2025	38	
	4/23/2025	39	
	4/25/2025	40	
16	4/28/2025	41	
	4/30/2025	42	River Channels and Presentations
	????		Presentations

### 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 collecting hydrologic data and using the hydrologic functions of ArcGIS or other software to delineate a watershed, show flow boundaries and characteristics of the watershed. Summarize the project in a poster or powerpoint presentation. Complete a presentation at the end of the semester.
- 3) Complete 15 hours of volunteer work that relates to water and watersheds.

NOTE: Grading is weighted towards your final project. It is 40% 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.

### **ADA Statement**

SRSU Accessibility Services. Sul Ross State University (SRSU) is committed to equal access in compliance with the 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. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartz Grisham, LPC, SRSU's Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email [mschwartz@sulross.edu](mailto:mschwartz@sulross.edu) or [ronnie.harris@sulross.edu](mailto:ronnie.harris@sulross.edu). Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

### **Student Responsibilities**

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize him/herself with the requirements of such laws.

### **Counseling**

Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting [Timelycare/SRSU](https://www.timelycare.com/sulross). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

### **Libraries**

The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, [library.sulross.edu/](http://library.sulross.edu/). Off-campus access requires logging in with your LobolD and password. Librarians are a tremendous resource for your coursework and can be reached in person, by email ([srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu)), or by phone (432-837-8123).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting [library.sulross.edu/find-and-borrow/texshare/](http://library.sulross.edu/find-and-borrow/texshare/) or ask a librarian by emailing [srsulibrary@sulross.edu](mailto:srsulibrary@sulross.edu).

### **Academic Integrity**

Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. Students should submit work that is their own and avoid the temptation to engage in behaviors that violate academic integrity, such as turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden. Students should also avoid using open AI sources *unless permission is expressly given* for an assignment or course. Violations of academic integrity can result in failing assignments, failing a class, and/or more serious university consequences. These behaviors also erode the value of college degrees and higher education overall.

### **Classroom Climate of Respect**

Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting

to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

**Supportive Statement**

I aim to create a learning environment for my students that supports various perspectives and experiences. I understand that the recent pandemic, economic disparity, and health concerns, or even unexpected life events may impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.