

## Water 493: Advanced Hydrologic Analysis

Spring 2019

Lecture: 9-11 TNR 252

Lab: 10-12 TNR 322

Prerequisites: NRES 250, 251; MATH 355, GEOG 279, WATR 389, WATR 390

Professor: Katherine Clancy

Office: TNR 244

Phone: 715.346.3429

Email address: kclancy@uwsp.edu

Office hours (for student questions, concerns, or chats): 2-3 Mondays, 11:30-12:30 Thursdays

Comprehensive Final Exam: Monday 5/13 at 12:30-2:30

Course is on canvas!

<https://www.uwsp.edu/canvas/Pages/default.aspx>

Schedule: Readings and Topics are subject to change, please check canvas

Expectations: Understand basics of how to use a spreadsheet (i.e. excel) and college algebra and statistics.

Objectives: After completing the reading assignments and laboratories in this course you should be able to do the following:

1. Analyze hydrologic data statistically and interpret using appropriate statistical language
2. Assemble and discuss graphs, maps, tables, and associated analyzes in a report.
3. Perform common functions in ArcMap delineate a watershed, clip landuse, soil, and associated data, and make maps.
4. Perform common graphical and statistical functions in Excel such as make a scatterplot graph and perform a t-test.
5. Report and present data in a visually appealing manner with a clear logical order.

Group Work Expectations: For group assignments, you are expected to come to class/lab. If you cannot, you need to inform me and your group ahead of time via email. Time designated for group work requires that you work on the group project.

Textbook: Environmental Hydrology, 2<sup>nd</sup> ed. By A. Ward and S. Trimble (EH)

Statistical Methods in Water Resources. Helsel and Hirsch, 2002 (pdf online)

### Schedule Subject To Change

Week: Dates	Lecture	Online	Lab
1: Jan 22-25	Speed Grouping and Watersheds	watersheds and runoff	introduction
2: Jan 28-Feb 1	Hydrologic Data and Curve Number (Reading: Curve Number and Beyond)	watersheds and runoff	project 1
3: Feb 4-8	Landuse, Runoff, Sediment and Water Quality	ow to do the following: Oral Presentations, Citations, and Data sources, Curve Number and Water Quality (Presto)	project 1
4: Feb 11-15	Landuse, Runoff, and Internal Drainage	readings and reading write up	project 1
5: Feb 18-22	Discussion of Hawkins (1993) and Potter (1991) and introductory paragraph	linear regressions	project 1 (due 2/21)
6: Feb 25-Mar 1	multiple regressions	binning and multiple regression	project 2

7: Mar 4-8 (we meet 9-11!!)	in class presentations on landuse, runoff, sediment	multiple regression assignment	project 2
8: Mar 11-13	weighted overlay	weighted overlay assignment	project 2
Mar 18-22	spring break		
9: March 25-29	weighted overlay workshop and review	Mann Kendall, hydrology review	project 2 (due 3/28)
10: Apr 1-5	Midterm	Midterm due 4/4	midterm spatial models
11: Apr 8-12 (we meet 9-11)	weighted overlay oral presentations		project 3
12: Apr 15-19	writing workshop (how to present variables)	presto reading	project 3
13: Apr 22-26	PRESTO and spatial models	presto reading assignment	project 3
14: Apr 29-May 3	Model validation versus verification	reading	project 3 (due 5/2)
15: May 6-10 (we meet 9-11!!)	spatial model presentations		final project
May 13 <sup>th</sup>	final exam		final project due 5/13 at 5 pm

## POLICIES AND OTHER CONSIDERATIONS

### I. UWSP Community Bill of Rights and Responsibilities

UWSP values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, a set of expectations have been developed for all students and instructors. This set of expectations is known as the Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. For more information go to: <http://www.uwsp.edu/stuaffairs/Pages/rightsandresponsibilities.aspx>.

The Rights and Responsibilities document also includes the policies regarding academic misconduct, which can be found in Chapter 14. A direct link can be found here: <http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/SRR-2010/rightsChap14.pdf>.

### II. Americans with Disabilities Act

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. For more information about UWSP's policies, check here: <http://www.uwsp.edu/stuaffairs/Documents/RightsRespons/ADA/rightsADAPolicyinfo.pdf>.

If you have a disability and require classroom and/or exam accommodations, please register with the Disability Services Office and then contact me at the beginning of the course. I am happy to help in any way I can. For more information, please visit the Disability Services Office, located on the 6<sup>th</sup> floor of the Learning Resource Center (the Library). You can also find more information here: <http://www4.uwsp.edu/special/disability/>.

### III. Attendance and Participation (50 points)

Attending class meetings and arriving promptly are expectations for the course. If you must miss class, please email me. Participation expectations include having required readings completed before class, bringing necessary materials (course text, equipment for taking notes), listening attentively to others, being respectful of instructor and peers, contributing to class discussion/activities, and completing assignments by the due date.

Students generally do very well in this class and enjoy it. Those few students who have had problems in the past are often students who leave the labs early. Do not underestimate the time it takes to do these projects. Additionally realize that the labs are time set aside for your instructor to help you.

- Student missing 2 or more labs/lecture (or combination) will incur a 10% penalty from their final grade.
- **Professional behavior is expected toward your classmates and instructor. Disruptive behavior is considered anything other than paying attention and taking notes in class. Examples of disruptive behavior are as follows: habitually coming to class tardy, talking, sleeping in class, texting, reading the newspaper, and eating. It is highly unusual that there is a problem of this nature in this class. Unusually you will be given a warning in the form of a written email. This may be followed by removal of any extra credit and/or a deduction of 10 percent of your final grade.**

#### IV. Point Distribution

Attendance/Participation 50 points

Project 1: 40 pts

Project 2: 50 pts

Project 3: 60 pts

Final Project: 50 pts

Oral Presentation 1: 25 pts

Oral Presentation 2: 25 pts

Oral Presentation 3: 50 pts

#### **Assignments/Writing Workshops/Journal Discussions/Data Organization 100 pts**

Midterm 100 points

Cumulative Final Exam 150

#### **Total Points: 700**

Grade	Percent	Grade	Percent
A	93-100%	C	70-74%
A-	90-93%	C-	65-69%
B+	87-89%	D+	62-64%
B	83-86%	D	55-61%
B-	80-82%	F	< 55%

C+ 75-79%

**Late Assignments:**

- Habitually turning in projects or assignments will not be allowed (generally more than 1 time).
- If you are late completing an assignment, please email me with the estimated time you will be submitted your work
- It must be turned in before the following Tuesday lecture period.
- It needs to be handed in both a paper copy and electronic.

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