

WATR 493
Advanced Hydrologic Analysis

Catalog Description. Detailed analysis, prediction, and modeling of hydrologic phenomenon and land use impact using GIS and hydrologic statistical tools.

Expanded Description. This course will explore the interaction of precipitation with land and examine a suite of tools used to characterize the resulting hydrologic phenomena. We will incorporate a variety of existing hydrologic models in our work along with text file editing, spreadsheet programming, computer programming and statistical evaluation.

Instructor: Paul McGinley TNR 224F (Inside the "Groundwater Center")
346-4501 / paul.mcginley@uwsp.edu

Meetings: 3 – 4 PM Tuesday & Thursday
in TNR 252
Laboratory 2-4 PM Wednesday
in ACL or 252

Readings. An important part of this course is the reading list. We will continue to add readings during the semester. Most will be available electronically.

Grades. Grading is based on assignments (60%) and quizzes (40%). The quizzes are cumulative and will be based on class discussions, readings and assignments.

Week (Date)	Day	Discussion Topic	Lab Topic
1 1/21	1	Overview	Watershed water budget
	2	Watershed Water Budgets	
2 1/28	3	Hydrologic time series	Time series, scripting and statistics
	4	Hydrograph separation	
3 2/4	5	Hillslope hydrology	Baseflow Separation (<i>no group meeting / individual coding review</i>)
	6	Hydrology and nutrient transfer	
4 2/11	7	Watershed and water quality models	Eutrophication modeling
	8	Water quality models	
5 2/18	9	Event hydrographs	Eutrophication modeling
	10	Event Hydrographs	
6 2/25	11	Routing	HydroCAD
	12	Urban water management	
7 3/10	13	Urban water quality	P8
	14	WI AWRA	
8 3/24	15	Urban water quality management	WinSLAMM
	16	Urban water quality management	
9 3/31	17	Treatment device modeling	WinSLAMM(<i>no group meeting / individual coding review</i>)
	18	Treatment device modeling	
10 4/7	19	Agricultural watersheds	Dynamic Watershed Modeling
	20	Agricultural watershed hydrology	
11 4/14	21	Agricultural watershed hydrology	Terrain Analysis (ACPF/EVAAL)
	22	Watershed modeling	
12 4/21	23	Watershed modeling	Terrain Analysis (ACPF/EVAAL)
	24	Agricultural water quality	
13 4/28	25	Agricultural water quality	Soil Water Assessment Tool (SWAT)
	26	Linking watershed/water quality models	
14 5/5	27	Linking watershed/water quality models	SWAT
	28	Treatment device modeling	
15 5/12	29	Treatment device modeling	Final Presentations
	30	Review	