

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
346-4501 / paul.mcginley@uwsp.edu

Meetings: 3 – 4 PM Tuesday & Thursday
Laboratory 2-4 PM Wednesday
Virtual Classroom

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 (75%) and quizzes and final (25%). The quizzes and final are cumulative and will be based on class discussions, readings and assignments.

Week	Day	Discussion Topic	Lab Topic
1	1	Overview	Watershed water budget (individual meetings)
	2	Watershed Water Budgets	
2	3	Hydrologic time series	Watershed water budgets, Time series, scripting and statistics
	4	Hydrograph separation	
3	5	Hillslope hydrology	Hydrograph separation
	6	Hydrology and nutrient transfer	
4	7	Watershed and water quality models	Peak flow Estimation
	8	Water quality models	
5	9	Event hydrographs	Surface Water Modeling (Steady-state)
	10	Event Hydrographs	
6	11	Routing	Surface Water Modeling (Dynamic)
	12	Urban water management	
7	13	Urban Hydrology	Surface Water Modeling (Dynamic)
	14	Urban Hydrology	
8	17	Urban Water Quality	Urban Water Quality Modeling (P8)
	18	Urban Water Quality	
9	19	Urban Hydraulics	P8 Continued / Introduction to EPA SWMM
	20	Urban Hydraulics	
10	21	Agricultural watershed hydrology	EPA SWMM
	22	Watershed modeling	
11	23	Watershed modeling	EPA SWMM
	24	Agricultural water quality	
12	25	Agricultural water quality	Watershed Modeling / ACPF /SWAT
	26	Linking watershed/water quality models	
13	27	Linking watershed/water quality models	Watershed Modeling / ACPF /SWAT
	28	Treatment device modeling	
14	29	Treatment device modeling	Watershed Modeling
	30	Review	