CIVE 322 BASIC HYDROLOGY

Instructor	Jeffrey D. Niemann Engineering A226, 491-3517 jniemann@engr.colostate.edu
Office Hours	Tue 1-3 pm, Thu 12-1 pm, or by appointment
Recommended Textbook	Introduction to Hydrology, Fifth Edition Viessman and Lewis Prentice Hall, 2003
Canvas	All handouts, assignments, solutions, and grades will be posted
Grading	Homework 20% Midterm 1 25% Midterm 2 25% Final 30% Plus/minus grading will be used
Homework	Assigned each Wednesday Due before class on the following Wednesday, submitted on paper Late homework is not accepted Solutions are posted after due date Show your work, write in pencil, box your answers, include units, and staple all pages together
Project	Six parts, which are mostly finished during class Due near the end of the semester (see class schedule) Late projects are not accepted Project grade counts as extra credit (worth one homework)
Exams	Midterms are given in class Final is given during the scheduled final exam period Make-up exams are given only for extreme cases One 8.5 in by 11 in crib sheet is allowed for the first midterm Two 8.5 in by 11 in crib sheets are allowed for the second midterm Three 8.5 in by 11 in crib sheets are allowed for the final
Academic Integrity	Course adheres to the CSU academic integrity policy (p. 7 in general catalog) and the student conduct code All course submissions must be entirely your own individual work, but discussion with others is allowed Reference to any materials from this course that are posted elsewhere on the web is prohibited

Subject	Class	Topic	Reading
Introduction	1	Hydrologic Processes and Cycle	1.1,1.2
	2	Water Balance Equation	1.3-1.5
	3	River Basins	8.2
	4	Project Introduction[1]	
Probability & Statistics	5	Random Variables, Probability	3.1-3.3
	6	Data Analysis, Statistics[2]	3.7
	7	Theoretical Distributions[2]	3.5-3.7
	8	Frequency Factors[2]	3.7
Precipitation	9	Precipitation Processes and Measurement	4.1-4.3
	10	Hyetographs, Spatial Averages, Missing Data	4.4,4.5
	11	Inconsistent Data	
	12	Storm Characterization	4.6-4.9
	13	Design Storms (SCS Method)	13.4
	14	Design Storms (Block Method)[1]	13.4
Losses and Excess Precipitation	15	Interception, Depression Storage	5.1-5.3
	16	Infiltration Process	7.1-7.2
	17	Phi Index and Horton Infiltration Methods	7.3,7.7
	18	**Midterm Exam (Monday, February 26)**	
	19	SCS Excess Precipitation Method	7.9
	20	SCS Excess Precipitation Method[1]	7.9
Streamflow Response to Excess Precipitation	21	Streamflow Observations	8.1
	22	Base Flow Separation (Groundwater Recession)	9.1-9.2
	23	Base Flow Separation (Groundwater Recession)[3]	9.1-9.2
		Spring Break	
	24	Unit Hydrographs (Lagging Method)	9.3
	25	Unit Hydrograph Derivation	9.3
	26	Unit Hydrograph Derivation[3]	9.3
	27	Changing Unit Hydrograph Duration (S-Curve)	9.3
	28	Changing Unit Hydrograph Duration[3]	9.3
	29	Synthetic Unit Hydrograph (Snyder Method)	9.4
	30	Synthetic Unit Hydrograph (SCS Method)	9.4
	31	Synthetic Unit Hydrograph (SCS Method)[1]	9.4
Routing the Streamflow Response Downstream	32	Reservoir Routing (Modified Puls Method)	9.5
	33	Reservoir Routing (Modified Puls Method)[1]	9.5
	34	**Midterm Exam (Wednesday, April 11)**	
		Engineering Day (No Class)	
	35	River Routing (Muskingum Method)	9.5
	36	Muskingum Method Parameter Estimation	9.5
	37	Muskingum Method Application[1]	9.5
Periods Between Storms	38	Evaporation (Energy Method)	6.1-6.2
	39	Evaporation (Aerodynamic & Combo Methods)	6.2,6.6-6.7
	40	Groundwater **(Project Due Friday, April 27)**	10.1,10.2
Special Topics	41	Hydrologic Modeling	
	42	Hydrologic Modeling	
	43	Special Topic	
Final Exam (Thursday, May 10, 4:10 pm – 6:10 pm)			

[1] Application to Shaver Creek [2] Application to Fort Collins Flood [3] Application to Big Thompson Flood