

Hydrologic Processes (11:670:414 and 01:460:414)

Time & Place: Spring Semester, Monday & Wednesday, 3:55-5:15pm
ENR-223, Cook/Douglas Campus

Instructor: Ying Fan Reinfelder (email: yingfan@eps.rutgers.edu)

Office Hour: (1). Monday & Wednesday, 2:30 – 3:30pm, Rm. 230, Env. Sci. & Natural Res. Building, Cook
(2). Friday, 1:00 – 3:00pm, Rm. 336, Wright Geology Labs, Busch

Required Text: Physical Hydrology, 2nd edition, 2002, by S. Lawrence Dingman

Structure: Lecture on Monday, problem-solving on Wednesday
All homework assignments are due at class on Monday the following week
All exams are open-book & notes (no computers)

Grading: 10 Homework Assignments -----> 50%
Midterm Exam -----> 25%
Final Exam -----> 25%

A	>= 93
B+	>= 86
B	>= 79
C+	>= 72
C	>= 65
D	>= 52

Week	Monday Lecture	Week's Reading	Wednesday	Homework
1	Intro, basic concepts: pathways, watershed, mass balance, storage-flux	1, 2.1-2.5, 2.8	Monday lecture	
2	Climate and global water cycle	3	Exercise-1	HW-1
3	Precipitation: mechanisms and spatial-temporal patterns	4.1, 4.2.1-4.2.2, 4.4.1-4.4.3	Exercise-2	HW-2
4	Precipitation: observations, Case study: gauge under-catch	Handout	Exercise-3	HW-3
5	Snow and snowmelt, California snowpack, river flow, reservoirs and drought	5.1, 5.3, 5.4.1, 5.4.2 case-study	Exercise-4	HW-4
6	Water in soils: Darcy's law, hydraulic head	8.1.1, 6.3.1, 6.3.2, 6.4.2	Exercise-5	HW-5
7	Water in soils: soil physical properties	6.1-6.2	Exercise-6	HW-6
8	Water in soils: calculating fluxes summary and review	6.5	Midterm Exam	
9	Spring Break			
10	Exam overview, Evapotranspiration: the physics	B1.1-1.3, B2.5, D3-D4, D6, 7.1	Monday lecture cont.	
11	Evapotranspiration: from open water, potential vs. actual	7.3 - 7.4	Exercise-7	HW-7
12	Evapotranspiration: from soil and vegetation	7.5	Exercise-8	HW-8
13	Groundwater: aquifers and storage	2.6, 6.48.1.2-8.1.4, 8.2	Exercise-9	HW-9
14	Groundwater–surface water connection	8.3, 9.1.1-9.1.3, 9.2	Exercise-10	HW-10
15	Rivers, lakes, and wetlands	9.4, Handout	Summary and Review	
16	Last day of class, no meeting, Office hour	Final Exam Scheduled by University		