APPROXIMATE AGENDA, HYD 146 / GEL 156 (HYDROGEOLOGY AND CONTAMINANT TRANSPORT), 2003

Week	Lecture Dates	Topic	Reading	Problem set	Laboratory (Tue. 2-5)
1	Jan. 6, 8, 10	Introduction; Contaminant transport concepts; Geology and hydrogeology: common sedimentary depositional systems; Darcy's Law in anisotropic media	p. 13-32 p. 33-48 p. 103-128 for labs 1-2	1: Basics; Darcy's Law; Anisotropy	1: Wellbore storage problem
2	Jan. 13, 15, 17	Hydraulic conductivity of layered and heterogeneous media; Statistical distribution of hydraulic conductivity; Statistical correlation; REV concept; Fractured rock hydrology	p. 48-55		2: Field pumping test: prep. on Tues.; overview of methods **(field test on Sat. Jan. 18, *REQUIRED*)**
3	Jan. ~~20~~*, 22, 24 **No class*	Elastic properties; Main equations of flow; Flow nets	p. 58-68 p. 68-73	2: Fractured rock hydrology; elastic properties	2: cont'd: Pumping test discussion, recovery analysis, well efficiency, software use
4	Jan. 27, 29, 31	Flow nets; Factors controlling basin groundwater flow paths; Groundwater models (analytical and numerical)	p. 75-101 p. 136-142 p. 142-147		2: cont'd: Pumping test discussion, comparison of results
5	Feb. 3, 5, 7	Groundwater models (analytical and numerical); Case studies; Solute transport: physical processes	p. 159-164 p. 215-236		3: Sand box experiment and flow nets
6	Feb. 10, 12, 14	Solute transport: physical processes, chemical processes	p. 282-285 p. 296-299 p. 344-371		4: Groundwater modeling experiment
7	Feb. ~~17~~*, 19, 21 **No class*	Solute transport: chemical and biological processes, examples	p. 372-382		5: Microcosm ("ant farm") transport experiment
8	Feb. 24, 26, 28	Groundwater chemistry: basics and review, reactions on surfaces and pollutant transport, oxidation reduction reactions	p. 238-254 p. 255-280 *scan p. 303-319*		6: Groundwater basin analysis
9	Mar. 3, 5, 7	Groundwater chemistry: kinetics, nitrates, groundwater chemistry evolution, display of data, case study	p. 393-413	3: Groundwater chemistry; Piper diagrams	6: continued
10	Mar. 10, 12, 14	Solute transport: vadose zone and multiphase problems; Groundwater remediation; Isotope methods in groundwater	p. 417-442 p. 319-324		6: continued