

GROUND WATER GEOLOGY

GEOL 770

COURSE OUTLINE

<i>Week</i>	<i>Topic</i>	<i>References</i>
01-17	Geology and Groundwater	Fetter Chapter 8 F&C Chapter 4
01-24 01-31	Equations of flow, transport and Conservation	F&C Chapter 2 Bear Chapter 4, 6*
02-07	Flow nets	F&C Chapter 5
02-14 02-21	Water Quality and Groundwater Contamination Chemistry and Transport	Fetter Chapter 10 F&C Chapter 7, 9
02-28 03-14	Development and Management of Ground Water Resources Laws, Well Tests	F&C Chapter 8 Fetter Chapter 11
03-21 03-28	Ground water and Geotechnical Problem and Processes	F&C Chapter 10, 11 Deming Chapter 9, 12
04-04 04-11	Uptake of Water by Vegetation	Hillel, Chapter 19
04-18	Student presentations	
21-22	Final evaluation	

Texts

Environmental Soil Physics, Daniel Hillel, Academic Press, 1998

Applied Hydrogeology, Fetter, Prentice-Hall, 2001

Dynamics of Fluids in Porous Media, Bear, Dover 1972

Introduction to Hydrogeology, Deming, McGraw Hill, 2002

Groundwater, Freeze and Cherry, Prentice-Hall, 1979 (F&C)

* Extra reading if desired

Contact

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EVALUATION

<i>Item</i>	<i>Weight (%)</i>
Class participation	25
PROJECT	50
Final exam	25
Total	100

Learning outcomes

- (1) Derive the basic equations of groundwater flow
- (2) Draw flow nets for simple infiltration cases and carry out computations to ascertain the amount of flow in these cases.
- (3) To be able to independently carry out estimates of flow and hydraulic conductivity by using the results of well tests.
- (4) To ascertain the quality of groundwater via transport, to have a thorough understanding of the spread of contamination in groundwater aquifers