

Introduction of physical and chemical hydrogeology

GEO 346C, Fall 2011

Instructors

Instructor: Dr. Marc Hesse
Office: EPS 3.152
Office hours: Tuesdays 16:00 to 18:00
Email: mhesse@jsg.utexas.edu
html: <http://www.geo.utexas.edu/faculty/hesse>

Teaching assistant: Peter Zamora
Office: EPS 3.124
Office hours: Wednesdays 15:00 to 16:30
Email: pbzamora@mail.utexas.edu

Teaching assistant: Lauren Andrews
Office: EPS 3.122
Office hours: Tuesdays 9:30 to 11:00
Email: lauren.c.andrews@gmail.com

Assessment

Grading: In this class we will use a $\pm$ grading scale for the final grade. Homeworks and exams will be graded out of 100 points. The final grade will be computed as follows:

Homeworks:	35%
1 st midterm:	15%
2 nd midterm:	15%
Comprehensive final:	30%
Class participation:	5%

Individual homeworks may be weighted according to length and difficulty.

Collaboration: Homeworks can/should be discussed amongst students, but the solutions have to be written up individually. If you have discussed your homework with other students please note their names at the top of the homework (This will not affect your grade!).

Late policy: Homeworks are due in class on Thursdays. Homeworks not received before the end of class are considered late. The score on late homeworks will be reduced by 10 points. If you know you won't be able to hand in your homework, due exceptional personal reasons, let me know as early as possible, at least a class before the homework is due.

Course materials

No textbook required, students will take notes in class.

Syllabus

week	dates	topics	homework
1	25 Aug	Introduction, history of hydrogeology, intro to Matlab	none
2	30 Aug, 1 Sep	Hydrologic cycle, Baseflow, Infiltration	HW 1 (M)
3	6 Sep, 8 Sep	Porous media, Darcy's law, layered media	HW 2 (P)
4	13 Sep, 15 Sep	Darcy's law in 2D & 3D, gradients, contacts	HW 3 (L)
5	20 Sep, 22 Sep	Streamlines, flow nets, regional flow	HW 4 (P)
6	27 Sep, 28 Sep	wells, well testing, capture zones	HW 5 (L)
7	4 Oct, 6 Oct	summary of physical hydrogeology, 1st midterm exam	HW 6 (P)
8	11 Oct, 13 Oct	Law of mass action, activity, aqueous complexing	none
9	18 Oct, 20 Oct	Dissolution and precipitation of minerals	HW 7 (L)
10	25 Oct, 27 Oct	Ion exchange and surface complexation	HW 8 (P)
11	1 Nov, 3 Nov	Contaminant transport	HW 9 (L)
12	8 Nov, 10 Nov	review chemical hydrogeology, 2nd midterm exam	HW 10 (P)
13	15 Nov, 17 Nov	Hydrogeophysics - resistivity	none
14	22 Nov, (24 Nov)	Hydrogeophysics - shallow seismology	HW 11 (L)
15	29 Nov, 1 Dec	Integration: physical, chemical hydrogeology, hydrogeophysics	HW 12 (P)
16	13 Dec, 9:00 to 12:00	Comprehensive final exam	none