1-2014

GEO 585.02: Groundwater Surface-Water Interaction - A Multi-Disciplinary Approach

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Geo 585-02
Spring 2014
Surface-water Groundwater Interaction: A Multi-Disciplinary Approach

Woessner
Tues-Thur 8:10-9:00 + Three required 1/2 day field trips, I would consider a change in time or 2 hr on one day for lecture.
Dr. Woessner’s speaking and meeting schedule this semester will require rescheduling class meetings to a 2 hr evening meeting occasionally. A weeks notice will be given for any changes in the course meeting schedule.
Text: Readings on MOODLE

Course Objectives:
To explore the tools and methods used to study groundwater and surface water interaction in lakes, wetlands and streams. Become familiar with the classic and modern literature on surface water-groundwater interaction.

Specific Requirements
1. Read and prepare all assigned papers for each class period. Prepare a 5 minute summary class presentation and participate in paper discussions Purpose and Objectives, Methods, Results and Discussion and Conclusions.

2. Attend Three ½ day field trips Tentative Schedule is set in the courses outline. However, weather considerations will require some adjustments.

3. Completion of a 10 page term paper on one area of surface water-groundwater quantification or characterization: Physical methods, Geochemical Methods, Biological Methods. Paper Due May 6.

Assessment:
1. Satisfactory active class participation by being prepared to present summaries of each assigned article and active participation in discussions. Papers for the class meeting will be assigned and then students will randomly be chosen to present summaries and lead discussions (only three unprepared will be accepted then final grade will be decrease by 5 % for all additional unprepared. B. 80% is a passing grade for this course)
2. Satisfactory participation in scheduled field trips (attend all trips)
3. Grad of B or better on term paper.

Exam Schedule Thursday May 8th in class
January 28
Intro, Course Assignments, Groundwater Basics,

January 30

**Tools**

(sign up for times)

*How to Read A Science Paper -Rice University. PDF*

Precipitation p.85-88 Evaporation p.88-95

Feb 4
Stream Flow p. 95-98 Overland flow p. 98-101
Groundwater 101-106 Lake volume 106-108

Feb 6
Implications 108-110 Conclusions 110 Bill

Error analysis Taylor 1997 Intro to error analyses Section 3.5


Scott, R.I., 2010, Using watershed water balance to evaluate the accuracy of eddy covariance evaporation measurement for three semiarid ecosystems, Agricultural and forest Meteorology 150, 219-225 pp.

Feb 11


Feb 13

Rosenberry, 2005, Integrating seepage heterogeneity with the use of ganged seepage meters. Limnology and Oceanography: Methods, 131-142


Feb 18


Feb 20

Focus on Lake Systems

All students are responsible for all papers at all times. Electronic versions of papers provided in class. Students are expected make a 5 min presentation and hit the important points when called upon. Participation by random draw at the start of each class.

Bill background on GW and Lakes


Anderson, M. P. and J. A. Munter, 1981. Seasonal reversals of groundwater flow around lakes and the relevance to stagnation points and lake budgets. WRR, 17(4), pp. 1139-1150

Feb 25


Feb 27


Focus on Wetlands
Bill background hydrogeology of wetlands

March 4


March 6


March 11


March 13


March 18


Focus on Streams

Bill Background on GW and Streams

March 20


March 25


March 27


SPRING BREAK March 31 through April 4

April 8


April 10


**April 11 12:10 -5:00PM Field trip to Frenchtown Pond**

**Lake tools**

April 15


April 17


April 18 12:10-5:00 Field Trip Bandy Ranch

April 22


April 24


April 25 12:10-5:00 Field Trip N. Fork of Elk Creek

April 29

May 1

May 6

May 8 Final Exam

Term Paper due May 3

Additional readings catch up