



Title: Physical Hydrogeology (GEO SCI 463)

Term: Fall 2019

Credits: 4 Credits Undergraduate/Graduate

Description: Study of groundwater occurrence, its interrelationship with surface water, aquifer properties, groundwater flow and water supply development, including well hydraulics, water quality, and groundwater law

Duration: 3 hours lecture per week, 3 hours lab per week, and one off-campus field trip

Prerequisites: junior/senior status; GEO SCI 100(P) or GEO SCI 101(P); MATH 232(P).

Lecture: 12:00 PM to 1:20 PM, Mon. and Wed., Sept. 3 to Dec. 12, Lapham Hall, Room 262

Lab Section 801: 3:00 PM to 5:50 PM, Mon., Sept. 3 to Dec. 12, Lapham Hall, Room 262

Lab Section 802: 3:00 PM to 5:50 PM, Wed., Sept. 3 to Dec. 12, Lapham Hall, Room 262

Teacher: Dr. C.J. Paradis, E-mail: paradisc@uwm.edu, Phone: 414-229-2493, Office Hours: Tue. and Thu., 10:00 AM to 12:00 PM, Lapham Hall, Room 348

Teacher's Assistant: Evvan Plank, E-mail: egplank@uwm.edu, Phone: 414-531-0142, Office Hours: Wed., 1:20 PM to 3:00PM (and by appointment), Lapham Hall, Room 332

Textbook: Applied Hydrogeology, 4th Edition, C.W. Fetter, ISBN10: 1478637099, Paperback

Grading: 50% lab assignments (due by midnight the following week, -5% for each day late), 20% mid-term exam, 20% final exam, 10% field trip (trip is Sat., Oct. 12, write up due Fri., Nov. 1, 6pm, -10% for each day late)

Field Trip: UWM Field Station, Saukville, WI, Saturday, October 12

Final Exam: Friday, Dec. 20, 12:30 PM to 2:30 PM, Lapham Hall, Room 262 (Optional Time: 3:00 PM to 5:00 PM)

Time Investment: No less than 48 hours (lecture, laboratories, examinations, preparation, etc.) per 1 credit hour per semester, i.e., no less than (4 credits)*(48 hour/credit) = 192 hours (\approx 13 hours/week)

Course Schedule

Week of:	Lecture Topic	Lecture Reading	Lab Assignment
9/2	M: No Class W: Prerequisites Review	None	No Lab
9/9	M: Water W: Water	Chapter 1	(1) Groundwater Budget Exercise
9/16	M: Hydrologic Cycle W: Hydrologic Cycle	Chapter 2	(2) Water Level Protection & Interpretation
9/23	M: Properties of Aquifers W: Properties of Aquifers	Chapter 3	(3) Stream Hydrograph Separation
9/30	M: Groundwater Flow W: Groundwater Flow	Chapter 4	(4) Flow Net Exercise 1
10/7	M: Groundwater Flow to Wells W: Groundwater Flow to Wells S: Field Trip: UWM Field Station*	Chapter 5	(5) Flow Net Exercise 2
10/14	M: Groundwater Flow to Wells W: Soil Moisture	Chapters 5 & 6	(6) Piezometer (Slug) Test
10/21	M: Mid-term Review W: Mid-term Exam	Chapter 6	(6) Piezometer (Slug) Test
10/28	M: Regional Groundwater Flow W: Geology of Groundwater	Chapters 7 & 8	(7) Steady-state Flow to a Well
11/4	M: Water Chemistry W: Water Chemistry	Chapter 9	(8) Unsteady Flow in a Confined Aquifer
11/11	M: Water Quality W: Groundwater Contamination	Chapter 10	(9) Unsteady Flow in an Unconfined Aquifer
11/18	M: Water Law W: Field Methods	Chapters 11 & 12	(10) Hydrogeologic Interpretation
11/25	M: Special Topic W: No Class	None	No Lab
12/2	M: Groundwater Models W: Groundwater Models**	Chapter 13	(10) Hydrogeologic Interpretation
12/9	M: Final Review W: Final Review	None	Final Review

*Field Trip: UWM Field Station, Saukville, WI, Saturday, October 12 (<https://uwm.edu/field-station/>)

**Guest Lecturer: Daniel Feinstein, United States Geological Survey



University Policies: <http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf>

1. Students with disabilities: <http://uwm.edu/arc/>
2. Religious observances: https://www4.uwm.edu/secu/docs/other/S_1.5_ACCOMMODATIONS_BELIEFS.pdf
3. Students called to active military duty: <http://uwm.edu/active-duty-military/>
4. Incompletes: https://www4.uwm.edu/secu/docs/other/S_31_INCOMPLETE_GRADES.pdf
5. Discriminatory conduct: https://www4.uwm.edu/secu/docs/other/S_47_Discriminatory_Conduct_Policy.pdf
6. Title IX/Sexual Violence: <https://uwm.edu/sexual-assault/> and <http://uwm.edu/academicaffairs/facultystaff/policies/academic-misconduct/>
8. Complaint procedures: https://www4.uwm.edu/secu/docs/other/S_47_Discriminatory_Conduct_Policy.pdf
9. Grade appeal procedures: https://www4.uwm.edu/secu/docs/other/S_28_Grade_Appeal_by_Students.pdf
10. LGBT+ resources: <http://uwm.edu/lgbtrc/>
11. Smoke and Tobacco-Free campus: https://www4.uwm.edu/secu/docs/other/S_49_Smoke_Tobacco_Free_Policy.pdf
12. Final Examinations: https://www4.uwm.edu/secu/docs/other/S_22_Final_Examinations.pdf