



**Title:** Field Methods in Hydrogeology (GEO SCI 563/563G)

**Term:** Fall 2023

**Credits:** 4 Units Undergraduate/Graduate

**Description:** Introduction to current equipment and methodology used in field evaluation of hydrologic systems, well installation and monitoring, stream gauging, indirect surface observations

**Duration:** 2.5 hours lecture per week and ~2.5 hours lab per week

**Prerequisites:** Junior standing or greater & GEO SCI 463(P); or graduate standing; or special students

**Lecture:** 10:00 to 11:15 AM, Tue. and Thu. Sept. 5 to Dec. 14, Lapham Hall, Room 264

**Lab Section 801:** 11:30 AM to 2:10 PM, Tue. Sept. 5 to Dec. 14, Lapham Hall, Room 264

**Teacher:** Dr. C.J. Paradis, E-mail: [paradisc@uwm.edu](mailto:paradisc@uwm.edu), Office Hours, Lapham 348: Fri., 10:00 AM to Noon or by appointment

**Textbook:** Introduction to Field Methods for Hydrologic and Environmental Studies, USGS, circa 1999, free download at: <https://pubs.usgs.gov/of/2001/0050/report.pdf>

**Grading:** 25% ad hoc lecture assignments, 50% lab assignments, 25% final exam

**Final Exam:** Finals Week (exact day and time yet to be determined), Lapham Hall, Room 264

**Graduate Student Requirement:** Apply knowledge gained towards substantial advancement of your thesis or professional development

**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)

**Grading:** A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), F (<60)

### Course Schedule

Week of:	Lecture Topic	Lab Assignment
9/4	Tu: Surveying Theory Th: Surveying Analysis	Tu: Surveying Practice (Sabin Wells)
9/11	Tu: Gradients Theory Th: Gradients Analysis	Tu: Gradients Practice (Sabin Wells)
9/18	Tu: Stream Gauging Theory Th: Stream Gauging Analysis	Tu: Stream Gauging Practice (Hubbard & Estabrook Park)
9/25	Tu: Stream Sampling Theory Th: Mass Discharge Analysis	Tu: Stream Sampling Practice (Hubbard & Estabrook Park)
10/2	Tu: Slug Test Theory Th: Slug Test Analysis	Tu: Slug Test Practice (Lapham Shallow Wells)
10/9	Tu: Pump Test Theory Th: Pump Test Analysis	Tu: Pump Test Practice (Lapham Shallow Wells)
10/16	Tu: Pump Test Theory Th: Pump Test Analysis	Tu: Pump Test Practice (Lapham Deep Wells)
10/23	Tu: Well Dilution Test Theory Th: Well Dilution Test Analysis	Tu: Well Dilution Test Practice (Lapham Shallow Wells)
10/30	Tu: Well Dilution Test Theory Th: Well Dilution Test Analysis	Tu: Well Dilution Test Practice (Sabin Hall Wells)
11/6	Tu: Injection-Drift Test Theory Th: Injection-Drift Test Analysis	Tu: Inj.-Drift Test Practice (Lapham Shallow Wells)
11/13	Tu: Injection-Drift Test Theory Th: Injection-Drift Test Analysis	Tu: Inj.-Drift Test Practice (Sabin Wells)
11/20	Tu: No Lecture (Thanksgiving-ish) Th: No Lecture (Thanksgiving)	Tu: No Lab (Thanksgiving-ish)
11/27	Tu: Site Characterization: Flow Th: Site Characterization: Flow	Tu: Computation, Visualization, & Technical Writing
12/4	Tu: Site Characterization: Transport Th: Site Characterization: Transport	Tu: Computation, Visualization, & Technical Writing
12/11	Tu: Final Exam Review Th: Final Exam Review	Tu: No Lab (Final Exam Review)