

GEOG4750 (GEOG5750) Surface Water Hydrology
Remote Synchronous
MW 9:30am-10:50am
Spring 2021

Instructor: Dr. Feifei Pan

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Online Office hours: MW2:00 PM - 4:00 PM (Zoom link: <https://unt.zoom.us/j/86459291215>, passcode can be found at the class website at Canvas) or by appointment.

Live Stream Class Zoom Link: <https://unt.zoom.us/j/86879459127> (Passcode will be posted at UNT Canvas and also sent to each student's UNT email address before every lecture starts.)

Class Website: All class materials and announcements will be posted at the UNT Canvas.

Required Text: Elements of Physical Hydrology by Hornberger, G.M. et al., 2nd edition, Johns Hopkins University Press, 2014

References:

Physical Hydrology by Dingman, Waveland Press Inc., 3rd edition, 2015.

Handbook of Hydrology, Edited by Madiment, McGraw Hill, 1993.

General Outline:

1. Introduction
---hydrology, water resources, hydrological cycle, water budget
2. Catchment hydrology: land-atmosphere interactions
---precipitation, interception and evapotranspiration
3. Principles of fluid dynamics
---forces on fluids, fluid statics, fluid dynamics, energy loss, laminar and turbulent flows
4. Open channel hydraulics
---specific energy, discharge measurements, bed roughness, channel flow equations, measuring flow in natural channels
5. Streams and floods
--- hydrograph, movement of flood waves, flood routing, flood frequency analysis
6. Water in the unsaturated zone
---forces on water in the unsaturated zone, pressure head and moisture characteristic, Darcy's law, vertical water movement, infiltration, equilibrium profile, field measurements, evapotranspiration from the unsaturated zone
7. Ecohydrology: interactions between hydrological processes and the biota
--- plant-water relations, waterlogging, hydraulic redistribution, soil moisture control on microbial activity biotic controls on hydrological processes.
8. Hillslope-stream continuum
--- streamflow hydrographs, hydrograph separation, runoff processes, flow routing, catchment models

Grading Policy: 10% attendance and class participation, 30% homework, 30% midterm, and 30% final exam. Attendance to the live stream Zoom meeting is mandatory and worth 10%. Absences can be excused if the excuse notes are emailed to me ahead of time. To encourage student participation, a student will obtain one point if he/she answers one question correctly in class. One point is equal to 0.1 actual extra points that will be added to the student's final overall grade.

Midterm Exam: The midterm exam will be an in-class open book test. The date of the test will be announced in class one week prior to the test.

Final Exam: The final will be a take-home exam distributed on Wednesday, April 21. It will be due at 5:00 pm on Wednesday, April 28. Collaboration in any way on the final exam is not allowed and will constitute an honor code violation.

Policy on Late Homework: Homework is due in class on the date specified. Homework turned in up to 1 week late will lose 25% credit, up to 2 weeks will lose 50% credit and after 3 weeks will receive no credit.

Disability Accommodations: The Department of Geography, in cooperation with the Office of Disability Accommodation, complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request before the 12th class day.

SPOT:

The Student Perceptions of Teaching (SPOT) is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SPOT to be an important part of your participation in this class.

Classroom Guidelines:

As a college student, you are considered a responsible adult. Your enrollment indicates acceptance of the University of North Texas college code of student conduct. Please follow these guidelines to avoid disrupting the class:

- (1) Turn off cell phones before arriving.
- (2) Do not arrive late or leave early (except for a bathroom break or emergency).
- (3) Do not sleep or eat during class.
- (4) Do not work on other assignments during class.
- (5) Do not use any computers during lecture even for taking notes (use pen and paper to take notes).
- (6) Do not talk when the instructor is lecturing, unless prompted for feedback by the instructor.

Acceptable Student Behavior:

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at www.unt.edu/csrr.