

GEOL 4850 – Intro. Groundwater Hydrology
MW 9:00 a.m. to 10:20 a.m. (ENV 241)
Fall 2023

Instructor

Dr. Paul F. Hudak, ENV 310H, hudak@unt.edu

Office Hours

MW 2:00 p.m. to 3:30 p.m. (or by appointment)

About Me

Hi! I am a professor in the Department of Geography and the Environment at UNT. Originally, I am from northern California, but have also lived in southern California, Wyoming, Pennsylvania, and of course Texas. Prior to coming to UNT in 1992, I received a B.S. in geology from Allegheny College, M.S. in geology from Wright State University, and Ph.D. in geography, emphasis in water resources, from the University of California at Santa Barbara. At UNT, I teach various courses in geology, water resources, and research methods, as well as supervise graduate students. My research interests include groundwater monitoring and remediation, wetlands, and environmental geology.

Readings

Principles of Hydrogeology, 3/e (access freely in Canvas)

Prerequisites

MATH 1100 or equivalent; GEOL 1610 or GEOG 1710 (or instructor consent)

Objectives

Upon successful completion of this course, students will be able to:

1. Describe the distribution and occurrence of groundwater
2. Outline techniques for monitoring groundwater
3. Apply principles of groundwater flow
4. Analyze groundwater pollution problems

Schedule (see Canvas)

This course consists of four modules, each requiring readings, assignment(s), and an exam. Assignments will be available in Canvas from the beginning of the course to their respective due dates. Upload completed assignments in Canvas. Exams take place in class; they are non-cumulative and closed phone/book/notes.

Module 1: August 21 – September 13

Chapter 1 – Introduction
Chapter 2 – Aquifers

Upload Assignments 1 and 2 by 11:59 p.m., September 12
Take Exam 1 in class on September 13

Module 2: September 14 – October 11

Chapter 3 – Monitoring Wells
Chapter 4 – Groundwater Flow

Upload Assignments 3 and 4 by 11:59 p.m., October 10
Take Exam 2 in class on October 11

Module 3: October 12 – November 8

Chapter 5 – Well Hydraulics and Aquifer Tests
Chapter 6 – Groundwater Quality and Solute Transport

Upload Assignments 5 and 6 by 11:59 p.m., November 7
Take Exam 3 in class on November 8

Module 4: November 9 – December 13

Chapter 7 – Managing Groundwater Pollution

Upload Assignment 7 by 11:59 p.m., December 7
Take Exam 4 in class on December 13 (8:00 a.m. to 10:00 a.m.)

Assignments consist of selected problems at the end of each chapter and additional questions. Answers for many of these problems are in the back of the book. However, you must show your work, including calculations, to receive credit. Do not simply write down the answer from the back of the book. You must complete the assignments individually. Do not copy from anyone else.

In addition to the textbook, the course includes slides with supplemental figures that emphasize the most important aspects of the textbook for this course (see Canvas).

Grading

The combined assignments are worth 100 points (see point values in Canvas), and each exam is worth 25 points, for a total of 200 possible points. A = 179-200, B = 159-178, C = 139-158, D = 119-138, and F = less than 119 points.

Extra Credit

The Department of Geography does not allow extra credit assignments (work not specified on a course syllabus).

Academic Integrity Policy

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the university.

Students who cheat or plagiarize will receive a "0" for that particular assignment or exam. Additionally, the incident will be reported to the Office of Student Rights and Responsibilities for further penalty. According to the UNT catalog, the term "cheating" includes, but is not limited to: (a) use of any unauthorized assistance in taking quizzes, tests, or examinations; (b) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; (c) the acquisition, without permission, of tests or other academic material belonging to a faculty or staff member of the university; (d) dual submission of a paper or project, or resubmission of a paper or project to a different class without express permission from the instructor(s); or (e) any other act designed to give a student an unfair advantage. Altering a returned test and claiming a grader or scanning machine made an error is also considered cheating. The term "plagiarism" includes, but is not limited to: (a) the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment; and (b) the knowing or negligent unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the [ODA website \(https://disability.unt.edu/\)](https://disability.unt.edu/).

Prohibition of Discrimination, Harassment, and Retaliation Policy

UNT prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The university takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

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 Dean of Students 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. Visit UNT's [Code of Student Conduct \(https://deanofstudents.unt.edu/conduct\)](https://deanofstudents.unt.edu/conduct) to learn more.