

CSCE 4460/5460 (Spring 2026)

Software Testing and Empirical Methodologies

Course Information

Class Timing:	Tuesday and Thursday 10:00 am – 11:20 am
Location:	NTDP K110
Instructor:	Hans Djalali
Office Hours:	Tuesday and Thursday - 11:30 pm – 1:30 pm, NTDP F267
Email:	Hans.djalali@unt.edu
TA:	Yerramsetti Sai Sree Durga
Email:	SaiSreeDurgaYerramsetti@my.unt.edu
TA Office Hours:	Tuesday and Thursday - 11:30 pm – 1:30 pm,
Location:	E wing (Cubicle E), Discovery Park
Zoom Link:	TBD
Credit:	3 credit hours
Course Documents:	Lecture Notes and Course Documents will be found in Canvas
Class Textbook:	<ol style="list-style-type: none">1. Introduction to Software Testing, Paul Aummann and Jeff Offutt, Cambridge, 2008; (supplementary)2. Experimentation in Software Engineering: An Introduction, Wohlin et al., Kluwer Academic Publishers, 2000 (supplementary)

Course Description and Learning Objectives

This course addresses recent advances in the field of software testing, including empirical methodologies that provide a systematic way to investigate various software engineering techniques and methodologies. Students will learn various fundamental testing techniques and the state of the art in testing techniques and understand how to design, conduct, analyze, and write up empirical studies of software engineering technologies. Readings from current literature regarding software testing and empirical studies will be discussed and evaluated. Over the semester, students will present the results from one particular paper in class and then lead class discussion of that paper. In addition to these paper readings and presentations, students will perform a term project (an individual project for graduate students) that investigates specific software testing research topics: (1) implements an existing (or new) algorithm or methodology, including a preliminary empirical evaluation; (2) performs a survey on testing tools or techniques; or (3) performs a formal empirical evaluation of testing tools or techniques. Evaluation will be based on class participation, individual assignments, the paper presentation, and the class project.


Prerequisite

CSCE 3444/4444/5430 or strong programming skill

Grading Criteria

○ Project	40%
○ Paper presentation	15%
○ Individual Assignments	25%
○ Group Assignments	10%
○ Attendance	10%

Grade Assignments are made based on the following:



A = 90-100%
B = 80-89.9%
C = 70-79.9%
D = 60-69.9%
F = less than 60%

Communication Expectations:

- The primary tool for direct communication with students will be email. Students should email concerns or questions about the course to the instructor (Hamed.Jalali@unt.edu) or TA (prakashmariappan@my.unt.edu). They can expect a response to emails within 24 hours, with some exceptions (e.g., illness of the instructor or TA). Please visit the [CLEAR webpage](#) for tips on online communication.
- Please avoid using AI tools like ChatGPT to write your emails, as they may make them unnecessarily long and overly formal. Instead, write them using your own knowledge. Any mistakes you make in the email will not be judged. The shorter your email is, the easier it is to communicate your thoughts.
- Students should contact the TA to discuss their grade issues. If the issue persists, they can follow up with the instructor.

Attendance:

Attendance is mandatory and will be monitored periodically.

Late Submission:

Assignments are expected to be submitted by the specified deadlines. Late submissions will incur a penalty of 20% of the total assignment grade per day, up to a maximum of two days. After this period, the assignment will not be accepted, and a grade of zero will be recorded. Please plan ahead to account for potential issues such as system failures, data loss, or lack of internet access, as these will not be considered valid reasons for late submissions.

Course Outcomes

- Apply fundamental and advanced software testing techniques in practical scenarios
- Design and conduct empirical studies in software engineering
- Analyze and evaluate research papers in software testing
- Evaluate testing methodologies and evaluate their effectiveness
- Understand different modern testing tools and frameworks effectively

Course Policies

- Cheating will result in failure in the course. Please reference the UNT academic integrity. All assignments will have specific due dates, and penalties will be given for late submissions (20% deduction per day up to a maximum of two days). The University is committed to providing a reliable online course system to all users. However, in the event of any unexpected server outage or any unusual technical difficulty that prevents students from completing a time-sensitive assessment activity, the instructor will extend the time windows and provide appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and TA and contact the UNT Student Help Desk helpdesk@unt.edu or 940.565.2324 and obtain a ticket number. The instructor, TA, and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.
- **Violation of Academic Dishonesty/Plagiarism:**
 - ✓ The student will fail the course, and the plagiarism case will be reported to the CSE department and the Office of Academic Integrity.

Academic Dishonesty/Plagiarism:

Cheating will result in failure in the course. Please reference the UNT academic integrity policy for more information on cheating. We emphasize that individual work such as homework assignments and pop quizzes must be done on your own and that cheating will result in failure of the course. Do not discuss solutions or share copies of individual work. Unacceptable collaboration will be considered a violation of a Code of Student Conduct, and will result in a failing grade for the course. In addition, the incident will be reported to the CSE department, in accordance with the CSE department policy on academic integrity. Please make sure if you obtain ideas from others you give credit to your source. If questions arise during the course of working on a problem, please feel free to contact the instructor for a clarification.

Student Perceptions of Teaching (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 with 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 improve my teaching continually. I consider the SPOT to be an essential part of your participation in this class. SPOT will be available near the end of the term.

Syllabus Revisions

This syllabus may be modified as the course progresses should the instructor deem it necessary. Notice of changes to the syllabus shall be made through Canvas and/or in-class announcements.

Additional Resources on Canvas:

- [Course Technology Requirements & Skills](#)
- [UNT Policies](#)
- [Academic Support & Student Services](#)
- [Rules of Engagement](#)
- [Web Accessibility & Privacy](#)
- [University Library Services](#)

Disability Accommodation

The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.

My Perspective on Learning and Growth

University is not just a place to gain knowledge. It is also a space for professional growth. You learn how to communicate, work in teams, solve problems, manage your time, stay disciplined, and take responsibility. Place to explore and discover things about yourself that you may not have learned elsewhere. I respect all teaching methods and believe in diversity in how we learn, but my approach focuses on hands-on activities, group projects, and applying what we learn directly to real tasks. There are no exams in this course, but your involvement in projects, assignments, and activities is key. Let's make this a collaborative and interactive class, and most importantly, let's make the best use of the time we have together. Time is your most valuable resource; use it wisely.
