

STAT 3680 - 410 (Fall 2026): Applied Statistics Syllabus

Instructor Information

Name: Junhyeon Kwon, PhD

Office Location: GAB 440F

Course Meets: Online (Asynchronous)

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Office Hours: By appointment; please email to schedule.

Optional Weekly Live Session: Monday evenings, 8:00–9:00 PM CT, Zoom

Teaching Assistant Information

Name: Akanksha Tiwari

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Optional Meeting with TA: TBD

How to Communicate with Your Instructor/TA

Connect with TA and me through email and/or by attending office hours. All students are required to use their official UNT email account for all course-related communications to ensure security. Emails from non-UNT accounts may not receive a response.

Please ensure that your email subject line begins with “STAT 3680.410” to help us notice and prioritize your message. During busy periods, inboxes can become quite full. If you do not receive a response within two business days, feel free to send a gentle follow-up email.

For routine questions about course content, assignments, grading logistics, or Canvas, please contact the TA first. Questions involving accommodations, personal or sensitive circumstances, grade disputes, or other matters requiring instructor discretion should be directed to the instructor.

About the Professor

Dr. Kwon earned a doctorate in statistics with a focus in multiscale methods in statistics from Seoul National University. His research focuses on developing statistical methods for spatio-temporal data in environmental and social sciences.

Welcome to UNT!

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

Course Description

This course provides an overview of statistical methods essential for analyzing quantitative data. The presentation of statistical methods assumes a strong foundation of calculus. Topics include the identification of appropriate metrics and measurement methods, descriptive and inferential statistics, calculation of probabilities for continuous variables, and linear regression. Standard and open-source statistical packages will be used to apply techniques to real-world problems.

Course Structure

This is a 16-week online course designed in a module system. All required instructional content will be available asynchronously through Canvas. I will host a weekly live session on Mondays on Zoom from 8:00 – 9:00 PM CT. These weekly live sessions are optional and will be used primarily for questions, review, and additional examples. The sessions will be recorded and uploaded after the end of each meeting. Students are also expected to participate in various online activities such as reading textbook and articles, watching videos, and participating in asynchronous discussions.

Course Prerequisites

MATH 1710 and MATH 1720 (may be taken concurrently). Students should have mastered differential and integral calculus of a single variable, including integration by parts.

Course Objectives

By the end of the course, students should be able to:

- Examine how to make intelligent judgments and informed decisions in the presence of uncertainty and variation.
- Investigate randomness and uncertainty.
- Develop probability models for a single discrete/continuous random variable.
- Examine confidence intervals and hypothesis-testing procedures for single data set.
- Examine confidence intervals and hypothesis-testing procedures for two sets of paired/unpaired data.
- Analyze if two variables are related and how strong that relationship is.

Course Topics

Course topics include:

- Review of fundamentals of data analysis
- Review of probability
- Parameter estimation and hypotheses testing
- Simple linear regression, correlation, and analysis of variance

Required Course Materials

The official textbook for this course is the e-book version of *Probability and Statistics for Engineering and the Sciences* by Jay L. Devore. One textbook is required for this course.

E-book readings, homework, and practice assignments will be viewed by the instructor and graded through Cengage's WebAssign online content platform – so the online access license is required. Students can purchase this directly from the Cengage website:

Instructions for linking to the online course portal will be provided at the start of the semester.

Other supplemental materials will be provided via a link to the UNT Willis Library website or included in the Module folders on Canvas. Students will also need to have access to Microsoft Excel for data analysis assignments.

Tentative Online Course Schedule

Week	Live Session / Item	Topic / Assignment
Week 1 (8/17 – 8/21)	Optional Mtg: August 17	Chapter 1: Sections 1.1–1.4
	Assignments	Homework – Chapter 1 Discussion (Ungraded) – Introduce Yourself
Week 2 (8/24 – 8/28)	Optional Mtg: August 24	Chapter 2: Sections 2.1–2.5
	Assignments	Homework – Chapter 2 Quiz 0
Week 3 (8/31 – 9/4)	Optional Mtg: August 31	Chapter 3: Sections 3.1–3.5
	Assignments	Homework – Chapter 3
Week 4 (9/7 – 9/11)	No optional meeting (Labor Day)	Chapter 4: Sections 4.1–4.3
	Assignments	Homework – Sections 4.1, 4.2, 4.3 Quiz 1
Week 5 (9/14 – 9/18)	Optional Mtg: September 14	Chapter 5: Sections 5.1–5.2
	Assignments	Homework – Sections 5.1, 5.2
Week 5	Exam 1	Covers Chapters 1, 2, 3, and 4
Week 6 (9/21 – 9/25)	Optional Mtg: September 21	Chapter 5: Sections 5.4–5.5
	Assignments	Homework – Sections 5.4, 5.5 Quiz 2
Week 7 (9/28 – 10/2)	Optional Mtg: September 28	Chapter 7: Sections 7.1–7.2
	Assignments	Homework – Sections 7.1, 7.2
Week 8 (10/5 – 10/9)	Optional Mtg: October 5	Chapter 7: Sections 7.3–7.4
	Assignments	Homework – Sections 7.3, 7.4 Quiz 3
Week 9 (10/12 – 10/16)	Optional Mtg: October 12	Chapter 8: Sections 8.1–8.2
	Assignments	Homework – Sections 8.1, 8.2
Week 10 (10/19 – 10/23)	Optional Mtg: October 19	Chapter 8: Sections 8.3–8.4

Week	Live Session / Item	Topic / Assignment
	Assignments	Homework – Sections 8.3, 8.4 Quiz 4
Week 11 (10/26 – 10/30)	Optional Mtg: October 26	Chapter 9: Sections 9.1–9.2
	Assignments	Homework – Sections 9.1, 9.2
Week 11	Exam 2	Covers Chapters 5, 7, and 8
Week 12 (11/2 – 11/6)	Optional Mtg: November 2	Chapter 9: Sections 9.3–9.4
	Assignments	Homework – Sections 9.3, 9.4 Quiz 5
Week 13 (11/9 – 11/13)	Optional Mtg: November 9	Chapter 12: Sections 12.1–12.2
	Assignments	Homework – Sections 12.1, 12.2
Week 14 (11/16 – 11/20)	Optional Mtg: November 16	Chapter 12: Section 12.5 Sections 12.3–12.4 (separate video)
	Assignments	Homework – Section 12.5 Quiz 6
Week 15 (11/23 – 11/27)	Thanksgiving	No classes
Week 16 (11/30 – 12/2)	Optional Mtg: November 30	Chapter 10: Section 10.1
Week 17	Final Exam	Comprehensive; date TBD

Assessing Your Work

Your letter grade will be determined based on the table below.

Homework Assignments (13 assignments; lowest grade dropped)	15%
Quizzes (6 quizzes; 2.5% each)	15%
Exams (Exam 1: 20%; Exam 2: 20%; comprehensive final: 30%)	70%
Total	100%

A = 90–100 % B = 80–89.9% C = 70–79.9% D = 60–69.9% F = below 60%

Grades are earned based on performance, not given based on effort or need. Your grade represents your performance in this course, not your potential as a student or as a human. If you feel an error has been made in the calculation of your grade, you may contact the instructor via e-mail. Grades are otherwise non-negotiable.

Academic Integrity Standards and Consequences

According to UNT Policy 06.003, Student Academic Integrity (<https://policy.unt.edu/policy/06-003>), 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.

Quiz and Exam Policy

Quizzes are short, individual assessments designed to check your understanding of the concepts and skills practiced in lectures and homework. Although the use of Generative AI is permitted for homework, quizzes are intended to assess your own understanding without outside assistance.

Quizzes and Exams will be completed remotely through Canvas using Respondus LockDown Browser and Respondus Monitor. You will need a computer with a functioning webcam and microphone and a reliable internet connection. All quizzes and exams are closed-book, but you may bring a formula sheet using both sides (standard paper size, 8 ½" x 11") that is prepared by yourself. The use of Generative AI, websites, communication with other individuals, or other unauthorized resources is prohibited. A calculator may be used unless otherwise stated.

You should complete the quiz/exam independently and the quiz/exam is subject to the UNT honor code and conduct policies/actions.

Homework Policies

Homework assignments can be accessed via WebAssign (<http://www.webassign.net/>) (<http://www.webassign.net/>).

- When you log in, you will be able to see the due dates.
- Cooperation on homework assignments is encouraged.
- **You have 4 submissions** for most questions. Your last submission will count as your final answer.
- If you use a help option (Read it, Watch it and Talk to a Tutor), it will count as 1 submission.
- You can save your work without using a submission.
- Some exercises will be randomized. In other words, it's possible that every student will have slightly different questions with different answers.
- **A 5% bonus will be awarded** to students who complete their homework more than 48 hours before the due date. However, this bonus will be applied only within the portion of your final grade allocated to homework (which is 12% of the total course grade). In other words, this bonus will not increase the weight of homework beyond its designated 12% of the total grade.

When computing grades, I will drop ONE lowest homework grade before computing the homework average. Therefore, in principle, you could get a 100% homework score and not turn in an assignment during the semester. I have this policy in case you get sick, a family emergency arises, etc., during the semester. You will still be responsible for the material in such assignments during the examinations. Requests for manual extensions will NOT be granted

AI Usage

- General Use
 - Students are encouraged to use Artificial Intelligence (AI) tools to improve their learning and practice throughout this course. These tools can help students grasp complex concepts, engage in creative problem-solving, and get additional practice with course-related skills.
- Use in Assignments
 - Graded Homework: Generative AI tools may be used as learning aids when completing homework. However, homework is intended as practice, and students remain responsible for understanding and being able to independently apply all concepts and methods covered in the assignments. Quizzes and examinations will assess this individual understanding without AI assistance.
- Quizzes and Examinations
 - The use of AI tools is strictly prohibited during both the quizzes and examinations (midterm and final exams). These assessments are designed to evaluate individual knowledge and problem-solving skills without the aid of external AI assistance.
 - Policy Violation Consequences: Any student found using AI tools during these exams will be considered in violation of the course's academic integrity policies. Such violations will be reported and may result in disciplinary action in accordance with the university's standards.
- Responsibility
 - Regardless of whether AI tools are used, students are completely responsible for ensuring the authenticity and originality of their work submitted for academic evaluation. This includes a full understanding of the material and the ability to discuss and defend all submitted work, irrespective of the tools used in its creation.

Unauthorized Aids During Examinations and Assessments

Students may use only those materials and resources that are expressly authorized by the instructor for a particular examination or assessment. Touching, holding, or accessing any unauthorized aid during the examination period constitutes a violation of the Student Code of Conduct, regardless of whether the aid is used.

Any item that may be considered an unauthorized aid must be kept out of view and in a closed container (e.g. zipped backpack, buttoned purse, etc.) during the entirety of the examination or assessment.

Unless specifically authorized in writing by the instructor, prohibited aids include, but are not limited to:

- Mobile phones and smartphones
- Smartwatches and fitness trackers with communication, recording, or internet capabilities
- Tablets, laptops, and other computing devices other than the laptop being used to take the examination through Respondus LockDown Browser
- Earbuds, headphones, and other audio devices
- Smart glasses, cameras, recording devices, and wearable technology
- Artificial intelligence (AI) tools, chatbots, and other generative AI technologies

- Notes, textbooks, study guides, formula sheets, or reference materials
- Any other device, material, or resource not expressly permitted by the instructor

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to the UNT Learning Management System (LMS) for contingency plans for covering course materials.

ADA Accommodation Statement

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodation at any time; however, ODA notices of reasonable 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 reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (<https://studentaffairs.unt.edu/office-disability-access>). You may also contact ODA by phone at (940) 565-4323.

Creating an Inclusive Learning Environment

Every student in this class should have the right to learn and engage within an environment of respect and courtesy from others. We will discuss our classroom's habits of engagement and I also encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding (Code of Student Conduct) (<https://policy.unt.edu/policy/07-012>).