FALL 2025 MATH 1680.360 Elementary Probability and Statistics

Instructor Information

Name: Ben Schwaighofer (Professor S)
Pronouns: He/him/his
Office Location: GAB 470C
Student Support Hours: M 1-3, TTh 3-4, Wed 1-3 in EMS lab (Sage 120A)
Email: Benjamin.schwaighofer@unt.edu

Hello! My name is Ben Schwaighofer (but that's a mouthful, so you can call me Professor S), pronouns he/him/his. I've been at UNT since 2010 as a graduate student, then as adjunct faculty, and now a lecturer - I may not have tenure, but I have more than ten-years! I love awful puns, so be warned. I have a bachelor's from Angelo State University and a master's from here at UNT, both in mathematics, and it's my goal to be an excellent teacher for as long as I can keep doing this.

How to Communicate with Your Instructor

I encourage you to reach out to me if you have questions, need help, or just to let me know if something happens that will affect your engagement with the class. It is not a bother, and I would much rather hear from you early and often than for you to be struggling alone. There are two primary ways to contact me:

- **Canvas:** Send me a message using the Canvas Inbox.
- **Email:** Send me an email *from your UNT email account* with "MATH 1680.360" in the subject line.

I try to respond as quickly as possible, but at worst you may expect a response within two business days. If you do not hear from me within that timeframe, feel free to send a reminder.

Student Support Hours

Student support hours are for you to come by and get help or ask questions, no appointment necessary. They are in the General Academic Building, GAB 470C. The numbering can be weird, but if you go to the north-west corner of the 4th floor, closest to Avenue C, you'll find the glass door to GAB 470 almost right across from the stairs. You'll find me on the right of that room.

You can come by any time during the posted hours. You can also Zoom with me then, but I will need advance notice to pull up Zoom for a meeting, 24 hours if possible. You can use this time to ask questions about anything related to the class or your academics, or get help with homework or studying. I can also meet with you in person or by Zoom outside of these hours, subject to my schedule, just email me to set it up.

I will also spend 2 hours per week in the Early Math Support (EMS) lab, in Sage 120A, from 1-3 on Wednesdays. This lab is specifically for help with homework or review questions, and you're welcome to come do your homework there regularly. It is open M-Th 11am-3pm, and there should always be faculty available to help with this class.

Course Description

Introductory course to serve [students of any field who want to apply statistical inference](#). Descriptive statistics, elementary probability, estimation, hypothesis testing and small samples. **Prerequisites:** Placement by the Math Placement Center

This is a 15-week, face-to-face course that will cover most of the material in Chapter 1-11. There will be three exams covering approximately three chapters each, plus a comprehensive final exam. There is also a required corequisite course (UGMT 1300) that meets for two hours per week.

Learning Objectives

By the end of the course, students will be able to:
- Describe the process of conducting a statistical study
- Determine whether a study is observational or experimental and identify appropriate use cases
- Understand confounding
- Recognize different types of data such as qualitative, quantitative, discrete, continuous, and correctly identify the level of measurement
- Understand the pros and cons of different sampling methods
- Explain sources of bias
- Summarize and present data accurately using tables, graphs, and charts
- Calculate appropriate measures of center and dispersion
- Describe distribution shapes
- Standardize data using z-scores
- Recognize linear relationships between two variables
- Make accurate predictions using linear regression
- Calculate the probability of simple and compound events
- Understand disjoint and independent events
- Construct and interpret contingency tables
- Understand discrete and continuous random variables
- Identify the parameters of binomial random variables and compute probabilities, expected value, and standard deviation
- Compute probabilities using uniform and normal random variables
- Understand sampling distributions and the Central Limit Theorem
- Construct confidence intervals for population means and proportions
- Test hypotheses involving population means and proportions
- Distinguish between Type I and Type II errors

Required Materials

This course has digital components. To fully participate in this class, students will need internet access to reference content on the [Canvas Learning Management System](#) (https://clear.unt.edu/supported-technologies/canvas/requirements). Students will also need:

- [Knewton Alta - 1 Term Access ELECTRONIC PRODUCT by Knewton.](#) Instead of a traditional text-book, the course material is contained in adaptive online assignments. Students must create a

Knewton account as soon as possible in order to complete the first homework assignment. *Students will need to finalize their purchase before the end of the 14-day courtesy access period.*
- [Microsoft Office 365](https://it.unt.edu/installoffice365) (https://it.unt.edu/installoffice365)
- A laptop or mobile device (such as a tablet or smartphone) that is compatible with iClicker
- Fill-in-the-blank notes (available on Canvas)

I also recommend that you bring a scientific or graphing calculator to both lecture and lab. *You may use Desmos and Microsoft Excel, but not smartphones, during exams.* If circumstances change, you will be informed of other technical needs to access course content. Information on how to be successful in a digital learning environment can be found at [Learn Anywhere](https://online.unt.edu/learn) (https://online.unt.edu/learn).

How to Succeed in this Course

At the beginning of the semester:

- Read this syllabus in detail 😊
- Familiarize yourself with the Canvas course
- Activate Knewton Alta by clicking on the first homework assignment
- Create an iClicker account with your UNT email

Before each class:

- Bring blank note paper or print/download the fill-in-the blank notes
- Have your notetaking setup ready to take notes during class

During class:

- Log into iClicker and keep it ready for activities
- Mark things that you think are important or don't understand
- Add comments to clarify possible misunderstandings
- Write questions that you would like to ask
- Arrive on time, and stay until class is dismissed

After class:

- Complete the iClicker exit poll
- Review your notes, filling any gaps based on what you remember from lecture
- Ask me any remaining questions you might have
- Start working on the appropriate Knewton Alta assignments as soon as possible

Every week

- Attend your UGMT 1300 lab meeting
- Attempt some of each homework before the weekend, so you have time to get help if needed

UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about

campus resources and information on how you can be successful at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

There are many academic resources available to help you succeed in this course:

- MATH 1680 Online Helpdesk (Schedule will be posted on Canvas.)
- Navigate's Study Buddy (https://navigate.unt.edu)
  - Study with a classmate.
- Math Lab (https://math.unt.edu/mathlab)
  - Get help with homework in a quiet environment.
- UNT Learning Center (https://learningcenter.unt.edu/)
  - Supplemental Instruction (https://learningcenter.unt.edu/math-1680-schedule)
    - Peer-led group study sessions.
  - Tutoring (https://learningcenter.unt.edu/tutoring)
    - Request free one-on-one tutoring.
- Early Math Support Lab
  - Get help with homework assignments from experienced faculty
  - Sage 120A, M-F 11am-3pm

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 accommodations 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

I value the many perspectives students bring to our campus. Please work with me to create a classroom culture of open communication, mutual respect, and belonging. All discussions should be respectful and civil. Although disagreements and debates are encouraged, personal attacks are unacceptable. Together, we can ensure a safe and welcoming classroom for all. If you ever feel like this is not the case, please stop by my office and let me know. We are all learning together.

Course Schedule

The above schedule is subject to change. Students will be notified by Eagle Alert if there is a campus closure that impacts a class.

Date			Lab
8/18/2025	Mon		Lab 1-Census & Helicopter Experiment
8/19/2025	Tue	Syllabus, 1.1, 1.2	
8/20/2025	Wed		
8/21/2025	Thu	1.3-1.4, 1.5	
8/22/2025	Fri		
8/23/2025	Sat		
8/24/2025	Sun	HW 1.1-1.5	
8/25/2025	Mon		Lab 2-Designing a Statistical Study
8/26/2025	Tue	2.1, 2.2, 2.3	
8/27/2025	Wed		
8/28/2025	Thu	2.5, 2.6, 2.9	
8/29/2025	Fri		
8/30/2025	Sat		
8/31/2025	Sun	HW 2.1-2.3, 2.5-2.6	
9/1/2025	Mon	Labor Day	Labor Day
9/2/2025	Tue	3.1, 3.2	
9/3/2025	Wed		
9/4/2025	Thu	3.3, 3.4	
9/5/2025	Fri		
9/6/2025	Sat		
9/7/2025	Sun	HW 2.9, 3.1-3.3	
9/8/2025	Mon		Lab 3-Graphic Displays of Data
9/9/2025	Tue	3.5, 3.8, 3.10	
9/10/2025	Wed		
9/11/2025	Thu	4.1, 4.2	
9/12/2025	Fri		
9/13/2025	Sat		
9/14/2025	Sun	HW 3.4-3.5, 3.8, 3.10	
9/15/2025	Mon		Lab 4-Measures of Center and Position
9/16/2025	Tue	4.3, 4.5	
9/17/2025	Wed		
9/18/2025	Thu	Exam 1 Review	
9/19/2025	Fri		
9/20/2025	Sat		
9/21/2025	Sun		
9/22/2025	Mon		Lab 5-Measures of Dispersion

Date	Day	Topic	Lab
9/23/2025	Tue	Exam 1	
9/24/2025	Wed		
9/25/2025	Thu	4.7, 5.1	
9/26/2025	Fri		
9/27/2025	Sat		
9/28/2025	Sun	HW 4.1-4.3, 4.5, 4.7	
9/29/2025	Mon		Lab 6-Correlation and Regression
9/30/2025	Tue	5.2, 5.3	
10/1/2025	Wed		
10/2/2025	Thu	5.5	
10/3/2025	Fri		
10/4/2025	Sat		
10/5/2025	Sun	HW 5.1-5.3, 5.5	
10/6/2025	Mon		Lab 7-Probability
10/7/2025	Tue	5.6, 6.1	
10/8/2025	Wed		
10/9/2025	Thu	6.1, 6.2	
10/10/2025	Fri		
10/11/2025	Sat		
10/12/2025	Sun	HW 5.6, 6.1-6.2	
10/13/2025	Mon		Lab 8-Contingency Tables
10/14/2025	Tue	6.6, 7.1	
10/15/2025	Wed		
10/16/2025	Thu	8.1, 8.2	
10/17/2025	Fri		
10/18/2025	Sat		
10/19/2025	Sun	HW 6.6, 7.1, 8.1	
10/20/2025	Mon		Lab 9-Discrete Random Variables
10/21/2025	Tue	8.2, 8.4	
10/22/2025	Wed		
10/23/2025	Thu	Exam 2 Review	
10/24/2025	Fri		
10/25/2025	Sat		
10/26/2025	Sun	HW 8.2, 8.4	
10/27/2025	Mon		Lab 10-Binomial Distribution
10/28/2025	Tue	Exam 2	
10/29/2025	Wed		
10/30/2025	Thu	9.3, 9.4	
10/31/2025	Fri		
11/1/2025	Sat		

Date	Day		
11/2/2025	Sun	HW 9.3	
11/3/2025	Mon		Lab 11-Normal Distribution
11/4/2025	Tue	9.4, 10.2	
11/5/2025	Wed		
11/6/2025	Thu	10.2, 10.3	
11/7/2025	Fri		
11/8/2025	Sat		
11/9/2025	Sun	HW 9.4, 10.2-10.3	
11/10/2025	Mon		Lab 12-Sampling Distributions
11/11/2025	Tue	10.4, 10.8	
11/12/2025	Wed		
11/13/2025	Thu	11.1, 11.2	
11/14/2025	Fri		
11/15/2025	Sat		
11/16/2025	Sun	HW 10.4, 10.8, 11.1	
11/17/2025	Mon		Lab 13-Confidence Intervals
11/18/2025	Tue	Exam 3 Review	
11/19/2025	Wed		
11/20/2025	Thu	Exam 3	
11/21/2025	Fri		
11/22/2025	Sat		
11/23/2025	Sun		
11/24/2025	Mon	Thanksgiving Break	Thanksgiving Break
11/25/2025	Tue	Thanksgiving Break	Thanksgiving Break
11/26/2025	Wed	Thanksgiving Break	Thanksgiving Break
11/27/2025	Thu	Thanksgiving Break	Thanksgiving Break
11/28/2025	Fri	Thanksgiving Break	Thanksgiving Break
11/29/2025	Sat		
11/30/2025	Sun	HW 11.2	
12/1/2025	Mon		Final Review
12/2/2025	Tue	11.3	
12/3/2025	Wed	HW 11.3	
12/4/2025	Thu	Final Review	
12/5/2025	Fri		
12/6/2025	Sat		
12/7/2025	Sun		
12/8/2025	Mon		
12/9/2025	Tue		
12/10/2025	Wed		
12/11/2025	Thu	Final Exam 10:30-12:30	

Course Topics

CHAPTER 1   Data Collection

       1.1   Evidence, Claims, and Study Types
       1.2   Variables and Measures of Data
       1.3   Sampling Methods
       1.4   Sampling Methods
       1.5   Sampling Errors, Bias, and Misleading Statistics

CHAPTER 2   Graphic Displays of Data

       2.1 Organizing Qualitative (Categorical) Data
       2.2 Frequency Tables for Quantitative (Numerical) Data
       2.3 Histograms
       2.5 Histograms and Frequency Tables with Excel
       2.5 Line Graphs, Dot Plots, and Stem-and-Leaf Plots
       2.9 Interpreting Graphs

CHAPTER 3   Measures of Center and Dispersion

       3.1 Measures of Central Tendency
       3.2 Which Measure of Central Tendency Should I Use?
       3.3 Quartiles and Box Plots
       3.4 Standard Deviation
       3.5 The Empirical Rule
       3.8 Measures of Central Tendency with Excel
       3.10 Measures of Spread with Excel

CHAPTER 4   Correlation and Regression

       4.1 Scatter Plots and Correlation
       4.2 Linear Regression Equations
       4.3 Least Squares and Outliers
       4.5 Coefficient of Determination
       4.7 Performing Linear Regressions with Excel

CHAPTER 5   Probability

       5.1 Probability Terminology and Notation
       5.2 Basic Probability
       5.3 Independent and Mutually Exclusive Events
       5.5 Addition and Multiplication Rule
       5.6 Contingency Tables

CHAPTER 6   Discrete Random Variables

       6.1 Introduction to Discrete Probability Distributions
       6.2 The Binomial Distribution
       6.6 Discrete Random Variables with Excel

CHAPTER 7-8   Continuous Random Variables

       7.1 The Uniform Distribution
       8.1 The Normal Distribution-Parameters
       8.2 The Normal Distribution-Probability
       8.4 The Normal Distribution with Excel

CHAPTER 9   Central limit Theorem

Assessing Your Work

Assignment	Percentage
Homework	15%
Lab Projects @ 1%	13%
Exams @ 15%	45%
Final Exam	17%
iClicker Engagement	5%
Soft Skills and Participation	5%
Review Center (Extra Credit)	4% bonus
Total	**104%**

Grading Policy
- A = 89.5 – 100%
- B = 79.5 – 89.4%
- C = 69.5 – 79.4%
- D = 59.5 – 69.4%
- F = 0 – 59.4%

Grades are based on mastery of the content. As a rule, I do not grade on a "curve" because that is a comparison of your outcomes to others. I do, however, encourage you to find opportunities to learn with and through others. Please take advantage of the academic resources listed above if you find yourself struggling.

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.

Attendance and Participation

Students are required to take exams in the classroom using provided university laptops.

Students are expected to attend class regularly and engage with the material. Research has shown that students who attend class are more likely to be successful. If you miss class, you will be responsible for obtaining a copy of the notes and any other information discussed from a classmate. If you expect to miss one week or more due to circumstances beyond your control, please notify me and your lab instructor in advance so that we can help you attain the course learning objectives. You may also provide documentation verifying the reason for your absence to the Dean of Students (https://studentaffairs.unt.edu/dean-of-students) and ask them to advocate on your behalf.

Engagement

Your engagement grade will be based on your participation in the classroom iClicker polls. If at the end of the semester you have participated in at least 70% of the activities, you will receive all 5 points toward your final grade. If your participation is below 70%, you will receive a 0 in this category. Note that this will not automatically calculate in Canvas's total grade properly, so in the gradebook you can put 100 or 0 as your score to see how that would affect your grade.

Recordings
This is a face-to-face class, not an online class. Nevertheless, I may record some of my lectures via Zoom for students who are unable to attend class. I reserve the right to restrict access to such recordings to students who have a valid and documented reason for missing class.

Homework Policy
Students may complete homework assignments up to 7 days after the due date. Assignments completed during this 7-day grace period will incur a 20% penalty. I will also drop the **two** lowest homework scores before computing your average at the end of the semester, with an opportunity to earn more during the semester.

Exam Policy

Students may use a scientific or graphing calculator, the online graphing calculator Desmos, and Microsoft Excel during exams. I will also provide a formula sheet. *Smartphones and searching the internet are prohibited during exams. No other notes or assistance are permitted.*

You may request to take an exam early, provided that I receive the request at least one week prior to the date you would like to take the exam.

Your score on the final exam will replace your lowest exam score if the final exam score is higher (unless you received a zero on an exam for academic dishonesty).

Final Exam
A mandatory and comprehensive final exam will be given on **Thursday, December 11th @ 10:30 am – 12:30 pm** in the **usual classroom.**

Extra Credit Reviews

Each exam will have a review through Knewton's review center. They will open about a week before the exam, and be due right before the exam. They are built on the same topics that the exams are, and will guide you to the topics you most struggled with on the homework first. For each review that you spend at least one hour doing at least 20 questions for, you will receive 1 bonus point on your total course grade, for a total possible grade of 104. Knewton tracks active time, so if you spend a long time on a single problem, it may not count all of that time.

UGMT 1300 labs

This class has an attached UGMT 1300 section, meeting once a week for 2 hours. Here, in a smaller setting, you will do guided lab projects, learn and discuss "soft skills" for succeeding in a college math class, and do assignments intended to help with the Math 1680 lecture with the help of your lab's teaching assistant. The lab projects are 13% of your Math 1680 grade, and the rest of the assignments are another 5% of your MATH 1680 grade. Please make sure to attend these sessions regularly.

Syllabus Change Policy

Any changes to the syllabus will be announced in class and/or posted on Canvas.

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.