

## Course Information

<b>Term:</b>	Summer 2023	<b>Phone:</b>	N/A
<b>Time:</b>	Asynchronous	<b>Email:</b>	<a href="mailto:seth.ketron@unt.edu">seth.ketron@unt.edu</a>
<b>Place:</b>	Online	<b>Office:</b>	Zoom
<b>Instructor:</b>	Dr. Seth Ketron	<b>Office Hours:</b>	By appointment

## Course Description

This course provides an overview of quantitative methods essential for analyzing data, with an emphasis on business and industry applications. Topics include identification of appropriate metrics and measurement methods, descriptive and inferential statistics, experimental design, parametric and non-parametric tests, simulation, and linear and logistic regression, categorical data analysis, and select unsupervised learning techniques. Standard and open-source statistical packages will be used to apply techniques to real-world problems.

## Course Prerequisites

This course requires that the student successfully complete college level mathematics and a basic statistics course prior to enrollment or have relevant current work experience that will enable him or her to be successful in an introductory graduate-level statistics course. Competence in Excel is also suggested as this course uses Excel and SPSS to complete the various statistical techniques taught throughout the course. Undergraduate students in IPAC 4130 should have completed MATH 1100 or MATH 1680 or an equivalent course.

## Course Learning Outcomes

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

1. Understand and apply experimental design and sampling methodologies.
2. Understand and apply appropriate parametric and non-parametric tests.
3. Develop and articulate results from linear regression models.
4. Apply categorical data analysis methods.
5. Apply statistical software tools to perform data analysis projects.
6. Apply concepts learned in course to real world case studies.

Course topics:

1. Review of fundamentals of data analysis
2. Review of probability
3. Parameter estimates
4. Testing hypotheses and goodness of fit
5. ANOVA
6. Analysis of categorical data
7. Linear and multiple regression



see me right away. Unless a student is confronted with a serious and absolutely unavoidable situation, missing any assignment will result in a zero (0).

More specific deliverables for ADTA 5130 are as follows:

Deliverable	Points Possible
Module Quizzes (7 at 25 points each)	175
Individual Assignments (7 at 50 points each)	350
Team Project (multiple deliverables)	475
<b>Total Points Possible</b>	<b>1000</b>

### Module Quizzes (25 points each)

There will be a quiz for each Module (except for Module 8). Quizzes will be worth 25 points each and may be taken up to two (2) times, with the highest earned grade counted toward your point total. The quizzes will be multiple questions designed to reinforce the textbook content. Quizzes need to be completed by the due date.

### Individual Assignments (50 points each)

There will be seven (7) individual assignments given during the course that are related to material covered in the chapters. Assignments may include questions to be answered about a specific concept, analysis using provided data sets, interpretation of the results of the analysis, or other questions related to the course material.

### Team Project (475 points total)

Students will complete a team research project for this course in teams of 4-5. Teams will be assigned in Week 2. You will be provided with a data set to use. If you choose to acquire your own data set, it must be pre-approved by the instructor. No exceptions to this will be allowed. (Data sets from Kaggle or similar sites will not be approved for this end of course project.) Details for the deliverables of the report will be contained in the appropriate modules and folders in our Canvas course.

It is expected that the paper be free from grammatical errors and appropriately use APA style for citations and reference list. The minimum requirement for the paper will be 10 pages of content, double-spaced, 1-inch margins, using Arial or Times Roman 12 point font. The submitted report should also include a separate cover page that includes your name(s) and the title of your paper as well as a reference list formatted using the current APA style guide. You are not required to include an abstract for this paper. A rubric for the project will be provided.

High-performing teams typically set weekly meetings outside of class, complete work well (i.e., several days) in advance, set roles and responsibilities for assignments, track accountability for each member, and provide fair and accurate peer evaluations. The best functioning teams lead to scores and peer evaluations that are not surprising to any team member. Unfortunately, in some cases, this does not happen. For example, one or more team members may fail to hold themselves accountable for their responsibilities. In these cases, **team members should evaluate their team members FAIRLY**. Some students may want to avoid conflict and give everyone perfect ratings on their teams. This is not advisable unless those ratings are actually warranted.

**If a team member does not complete their work in a high-quality and timely fashion, giving that member perfect ratings is telling them that their behavior is okay – you are strongly advised not to do this!**

A Qualtrics form will be provided via announcement in Canvas for the peer evaluation form. Please note that **you will be required to complete this form. FAILURE TO COMPLETE THE PEER EVALUATION BY THE DEADLINE WILL RESULT IN AN AUTOMATIC 100-POINT REDUCTION IN COURSE GRADE – NO EXCEPTIONS!**

Score adjustments will be based on variation in the student's individual mean score from the overall team mean rating. I will take an average of all team ratings for your team and calculate the mean for your team. I will then adjust your individual points based on how much your mean deviates from the team mean. Below is the rubric for how I will adjust points based the extent that your mean differs from your team's mean.

**If you receive a score adjustment**, you will receive comments in Canvas on how your teammates rated you overall. **You may set up an appointment to discuss your grade adjustments, but UNDER NO CIRCUMSTANCES WILL SCORES BE CHANGED AS A RESULT OF ANY SUCH MEETINGS unless there is clear evidence of bias.** In those cases, the student may request arbitration by the instructor **within 24 hours of the peer evaluation adjustment score posting**; in these cases, the decision of the instructor will be final.

Difference from Mean Score	Adjustment to Grade
-2.5 or greater	-100 points
-2.0 to < -2.5	-80 points
-1.5 to < -2.0	-60 points
-1.0 to < -1.5	-40 points
-0.5 to < -1.0	-20 points
<b>-0.5 &lt; mean &lt; 0.5</b>	<b>No change</b>
0.5 to < 1.0	+20 points
1.0 to < 1.5	+40 points
1.5 to < 2.0	+60 points
2.0 to < 2.5	+80 points
2.5 or greater	+100 points

## “Attendance” in an Online Course

Although the course is asynchronous, you are expected to log in to Canvas at least a few times per week (if not once per day) to check for any new announcements or information. **You will also be expected to communicate and meet with your assigned team regularly.**

## Course & University Policies

### Communication Expectations

The preferred way to contact me is via email (not the Canvas email tool) or a message in Teams if I am online and available. I encourage you to request a meeting time to ensure we have dedicated time in which I can answer your questions. Emails will be answered as quickly as possible, usually in one business day or less. I expect emails to follow professional etiquette standards as these are formal communications between the instructor and the student. If your email is related to a course activity/assignment, please attach appropriate files or include screenshots. Please visit our [Online Communication Tips](https://clear.unt.edu/online-communication-tips) (<https://clear.unt.edu/online-communication-tips>) for general guidelines to assist you in your online communications.

### Rules of Engagement

Rules of engagement refer to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:

- While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language on the basis 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 will not be tolerated.
- Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.
- Ask for and use the correct name and pronouns for your instructor and classmates.
- Speak from personal experiences. Use “I” statements to share thoughts and feelings. Try not to speak on behalf of groups or other individual’s experiences.
- Use your critical thinking skills to challenge other people’s ideas, instead of attacking individuals.
- Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”
- Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
- Avoid using “text-talk” unless explicitly permitted by your instructor.
- Proofread and fact-check your sources.
- Keep in mind that online posts can be permanent, so think first before you type.

See these [Engagement Guidelines](https://clear.unt.edu/online-communication-tips) (<https://clear.unt.edu/online-communication-tips>) for more information.

### Academic Integrity

Academic integrity is expected of every student. Examples of academic integrity violations include the following:

- Providing/selling any materials to a student assistance website. All course material—PPTs, lecture notes, notes that you take on the class materials, study guides, exams, syllabus, etc.—are copyrighted. Placing those materials with student assistance websites violates copyright laws.
- Cheating: Giving or receiving unauthorized help, working together, or sharing of work (partial or complete) with other students on individual projects or assignments. All individual assignments must be the result of your own knowledge and completed with your own hands.
- Giving or receiving unauthorized help, working together, or sharing of work (partial or complete) with other teams besides yours on team projects or assignments. All team work is to be completed by your team alone without the assistance of other teams.
- Plagiarism: Copying the language, structure, ideas, and/or thoughts of another and adopting those as one's original work.
- Falsification: A statement of untruth, either verbal or written, regarding any circumstances relating to academic work.
- Submitting another person's work in part or in whole OR giving work to another student who submits it as his/her own.
- Submitting the same paper you have created for two different courses without permission to do so.
- Attempting any act which if completed would constitute an academic integrity violation as defined above.

**All academic integrity violations will be reported to the appropriate academic integrity personnel and include consequences up to and including removal from the course with a grade of F.**

Turnitin will be utilized on all formal written assignments. All work submitted for credit must be original work created by the scholar uniquely for the class. It is considered inappropriate and unethical, particularly at the graduate level, to make duplicate submissions of a single work for credit in multiple classes, unless specifically requested by the instructor. Work submitted at the graduate level is expected to demonstrate higher-order thinking skills and be of significantly higher quality than work produced at the undergraduate level. Turnitin is used as a tool to assist students in their scholarly writing to address plagiarism issues. It is recommended that students use this resource to ensure their work is free of copyright issues prior to final submission of their projects.

### ADA Policy

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](http://www.unt.edu/oda) website (<http://www.unt.edu/oda>). You may also contact ODA by phone at (940) 565-4323.

### **Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)**

The University of North Texas (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.

### **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 Canvas for contingency plans for covering course materials.

### **Retention of Student Records**

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

### **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.



## Academic Support & Student Services

### Survivor Advocacy

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct. Federal laws and UNT policies prohibit discrimination on the basis of sex as well as sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking and/or sexual assault, there are campus resources available to provide support and assistance. The Survivor Advocates can be reached at [SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu) or by calling the Dean of Students Office at 940-5652648.

### Student Support Services

#### *Mental Health*

UNT provides mental health resources to students to help ensure there are numerous outlets to turn to that wholeheartedly care for and are there for students in need, regardless of the nature of an issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

- [Student Health and Wellness Center](https://studentaffairs.unt.edu/student-health-and-wellness-center) (<https://studentaffairs.unt.edu/student-health-and-wellness-center>)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [UNT Care Team](https://studentaffairs.unt.edu/care) (<https://studentaffairs.unt.edu/care>)
- [UNT Psychiatric Services](https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry) (<https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry>)
- [Individual Counseling](https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling) (<https://studentaffairs.unt.edu/counseling-and-testing-services/services/individual-counseling>)

#### *Chosen Names*

A chosen name is a name that a person goes by that may or may not match their legal name. If you have a chosen name that is different from your legal name and would like that to be used in class, please let the instructor know. Below is a list of resources for updating your chosen name at UNT.

- [UNT Records](#)
- [UNT ID Card](#)
- [UNT Email Address](#)
- [Legal Name](#)

*\*UNT euIDs cannot be changed at this time. The collaborating offices are working on a process to make this option accessible to UNT community members.*

#### *Pronouns*

Pronouns (she/her, they/them, he/him, etc.) are a public way for people to address you, much like your name, and can be shared with a name when making an introduction, both virtually and in-person. Just as we ask and don't assume someone's name, we should also ask and not assume someone's pronouns.

You can [add your pronouns to your Canvas account](#) so that they follow your name when posting to discussion boards, submitting assignments, etc.



Below is a list of additional resources regarding pronouns and their usage:

- [What are pronouns and why are they important?](#)
- [How do I use pronouns?](#)
- [How do I share my pronouns?](#)
- [How do I ask for another person's pronouns?](#)
- [How do I correct myself or others when the wrong pronoun is used?](#)

### *Additional Student Support Services*

- [Registrar](https://registrar.unt.edu/registration) (<https://registrar.unt.edu/registration>)
- [Financial Aid](https://financialaid.unt.edu/) (<https://financialaid.unt.edu/>)
- [Student Legal Services](https://studentaffairs.unt.edu/student-legal-services) (<https://studentaffairs.unt.edu/student-legal-services>)
- [Career Center](https://studentaffairs.unt.edu/career-center) (<https://studentaffairs.unt.edu/career-center>)
- [Multicultural Center](https://edo.unt.edu/multicultural-center) (<https://edo.unt.edu/multicultural-center>)
- [Counseling and Testing Services](https://studentaffairs.unt.edu/counseling-and-testing-services) (<https://studentaffairs.unt.edu/counseling-and-testing-services>)
- [Pride Alliance](https://edo.unt.edu/pridealliance) (<https://edo.unt.edu/pridealliance>)
- [UNT Food Pantry](https://deanofstudents.unt.edu/resources/food-pantry) (<https://deanofstudents.unt.edu/resources/food-pantry>)

### **Academic Support Services**

- Academic Resource Center: buy textbooks and supplies, access academic catalogs and programs, register for classes, and more.
- Center for Student Rights and Responsibilities: provides Code of Student Conduct along with other useful links.
- Office of Disability Accommodation: ODA exist to prevent discrimination on the basis of disability and to help students reach a higher level of independence. <https://disability.unt.edu/>
- Counseling and Testing Services: CTS provides counseling services to the UNT community as well as testing services; such as admissions testing, computer-based testing, career testing and other tests. <https://studentaffairs.unt.edu/counseling-and-testing-services>
- UNT Libraries: online library services <https://library.unt.edu/services/>
- Online Tutoring: chat in real time, mark up your paper using drawing tools and edit the text of your paper with the tutor's help.
- The Learning Center Support Programs: various program links provided to enhance the student experience. <https://learningcenter.unt.edu/>
- Supplemental Instruction: program for every student, not just for students that are struggling.
- UNT Writing Lab: offers free writing tutoring to all UNT students, undergraduate and graduate. <http://writingcenter.unt.edu/>
- Math Tutor Lab: <http://math.unt.edu/mathlab/>
- Succeed at UNT: how to be a successful student information. <https://success.unt.edu/>

## Course Schedule

Assignment due dates are posted here and on Canvas. Any changes to due dates will be updated on Canvas and communicated in an announcement. For assignments that require you to upload your work, you must submit your files in one of the following formats: .docx, .xlsx, .pdf, or .pptx. **Do not submit .pages files.**

Unless otherwise noted, **deadlines for assignments/submissions for a given week are due by the SUNDAY of that week.** For example, for Module 1, the quiz and assignment are due by 11:59p on Sunday, 6/11.

**LATE ASSIGNMENTS OR ASSIGNMENTS SUBMITTED BY EMAIL WILL NOT BE ACCEPTED.**

Week	Module	Topic(s)	Individual Work (Due by 11:59p SUNDAY)	Team Project (Due by 11:59p SUNDAY)
<b>1</b> (6/5 – 6/11)	<b>Module 1</b> Ch. 1-3	<ul style="list-style-type: none"> <li>➤ Data and Data Preparation</li> <li>➤ Tabular and Graphical Methods</li> <li>➤ Numerical Descriptive Measures</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 1 Quiz</li> <li>➤ Module 1 Assignment</li> </ul>	
<b>2</b> (6/12 – 6/18)	<b>Module 2</b> Ch. 4-6	<ul style="list-style-type: none"> <li>➤ Introduction to Probability</li> <li>➤ Discrete Probability Functions</li> <li>➤ Continuous Probability Functions</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 2 Quiz</li> <li>➤ Module 2 Assignment</li> </ul>	Meet your team (no deliverable for this)
<b>3</b> (6/19 – 6/25)	<b>Module 3</b> Ch. 7-8	<ul style="list-style-type: none"> <li>➤ Sampling and Sampling Distribution</li> <li>➤ Interval Estimation</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 3 Quiz</li> <li>➤ Module 3 Assignment</li> </ul>	Milestone I: Team Contract
<b>4</b> (6/26 – 7/2)	<b>Module 4</b> Ch. 9	<ul style="list-style-type: none"> <li>➤ Hypothesis Testing</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 4 Quiz</li> <li>➤ Module 4 Assignment</li> </ul>	
<b>5</b> (7/3 – 7/9)	<b>Module 5</b> Ch. 10-12	<ul style="list-style-type: none"> <li>➤ Statistical Inference Concerning Two Populations</li> <li>➤ Statistical Inference Concerning Variance</li> <li>➤ Chi-Square Tests</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 5 Quiz</li> <li>➤ Module 5 Assignment</li> </ul>	Milestone II: Descriptive Statistics
<b>6</b> (7/10 – 7/16)	<b>Module 6</b> Ch. 13	<ul style="list-style-type: none"> <li>➤ Analysis of Variance</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 6 Quiz</li> <li>➤ Module 6 Assignment</li> </ul>	
<b>7</b> (7/17 – 7/23)	<b>Module 7</b> Ch. 14 -17	<ul style="list-style-type: none"> <li>➤ Regression Analysis</li> <li>➤ Inference with Regression Models</li> <li>➤ Regression Models with Nonlinear Relationships</li> <li>➤ Regression Models with Dummy Variables</li> </ul>	<ul style="list-style-type: none"> <li>➤ Module 7 Quiz</li> <li>➤ Module 7 Assignment</li> </ul>	Milestone III: Analysis & Results
<b>8</b> (7/24 – 7/28)	Team Project Wrap-Up	<ul style="list-style-type: none"> <li>➤ Finalize Final Report (incorporating feedback from prior milestones!)</li> <li>➤ <b>Submit Final Report by Friday, July 28 at 11:59p</b></li> <li>➤ <b>Complete Peer Evaluation by Friday, July 28 at 11:59p</b></li> </ul>		