

University of North Texas
Data Analysis in Accounting – ACCT 5120
Fall 2023

<u>Instructor</u>	Jose Lineros, Ph.D., CPA CISA, CIA, CFE, CRISC, CSX, MCTS Office – BLB 399D Office hours: by appointment via Zoom
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<u>Class Times</u>	Wednesdays in person (6:30 pm to 9:20 pm) in BLB 260 (at all times, some of the course content will be delivered asynchronously). If we ever need to meet or Zoom just email me.
<u>Prerequisites</u>	ACCT 4100 or consent of instructor. You are responsible for making sure you have the correct prerequisites. Please check with Becky Andrews in BLB 213 if you are unsure.

LOOKFORWARD PROVISION: This course serves as a prerequisite for ACCT 5760

It may also be a prerequisite for some non-accounting courses. Please discuss your course schedule with your advisor.

Required Materials

1 – *Data Analytics for Accounting*, **2nd Edition**. (NOT 1st Edition) Richardson, Teeter, and Terrell. McGraw-Hill Education. ISBN: 978-1-260-83783-4.

Note: May be purchased as a new physical copy, used physical copy, eBook, or rental. McGraw-Hill Connect **is not required for this course.**

2 – *University of Arkansas Enterprise Systems Access*. No purchase necessary. Username and password will be assigned via Canvas.

Additional datasets for project completion will be made available to you via Canvas.

Course Description

Increasingly, your ability to use and interpret data is becoming synonymous with career success. Accounting professionals must be able to synthesize and utilize data to provide insights for their clients and ensure value-added services. This includes being comfortable with data migration, data cleansing, data analysis, and data visualization that is accessible to a wide audience. Additionally, it requires the student to be comfortable with the precepts of data extraction, and the statistical concepts that enable inferential analysis. Various software programs will be utilized to achieve these ends with an eye towards understanding the process as well as the tools.

Thus, this course seeks to introduce and expose accounting graduate students to different approaches and theories in the handling of data in order to reach these objectives.

Course Objectives

This course is designed to enhance a student's understanding of the role of data analytics across accounting service lines (e.g., financial, cost, audit, and tax). Students will develop a broad skillset using several analytics applications to conduct descriptive, diagnostic, predictive, and prescriptive analyses for decision-makers. Further, students will learn how to present the inferences of their analyses via visualizations and oral presentation for decision makers who are not necessarily topical experts. Here are some of the specific **learning objectives** of the course:

- **Understand the importance of data analytics**
- **Develop an understanding of different frameworks and their approaches to data analytics**
- **Recognize the importance of a good data analytics planning process**
- **Utilize statistical methods and software to draw actionable inferences**
- **Effectively engage data analytics into quality decision-making**
- **Be able to understand and employ basic RPA principles**
- **Understand the ethics associated with data capture and analysis**

Course Procedures

This class is **not** 100% online, please see meeting times above. Lectures are sometimes pre-recorded and available to view at your convenience on Canvas. Further, several video tutorials for the applications we will be using in this course (e.g., Microsoft Excel, Microsoft Power BI, Tableau, SQL, SPSS, etc.) are available as a resource on Canvas as you complete the projects for this course. I recommend using a device with a Windows OS to avoid any issues with the aforementioned applications. If you do not have access to a device with a Windows OS, please **DO NOT** purchase one solely for this class. Apple devices have most of the same functionality. If you need a laptop for class projects you may check one out with your UNT Student ID from the G. Brint Ryan College of Business Computer Lab or access a virtual machine with VMWare (instructions to access VMWare detailed at <https://cob.unt.edu/lab/virtual-lab> That said, UiPath Studio (the RPA Project) is not compatible with MacOS. If you are exclusively MacOS, you may want to find a way to access a Windows OS device, or alternatively find a partner in class for purposes of the UiPath Studio RPA projects.

Email

The best way to contact me is through e-mail: jose.linerros@unt.edu. I am usually prompt with my replies and if not, I try my best to reply within 24 hours. If 24 hours have elapsed without a reply please send me a reminder e-mail. Please only contact me via e-mail with respect to personal subject matters.

Attendance and Assignment Requirements

You are expected to at least check in once a week. No late unexcused assignments will be accepted. Late assignment approval is only considered in cases of personal or dependent's

health (e.g., medical doctor's note required), family emergency, or other exigent circumstances. This does not guarantee approval, only provides a beginning point for case review.

COVID-19 impact on attendance

It is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact me if you are unable to complete an assignment/quiz/project by the submission deadline due to a related issue regarding COVID-19. It is important that you communicate with me *prior to the submission deadline expiring* as to what may be preventing you from completing the assignment/quiz/project so I may make a decision about accommodating your request for an extension.

If you are experiencing cough, shortness of breath or difficulty breathing, fever, or any of the other possible symptoms of COVID-19 (<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

Help

My goal is to help you attain the knowledge and skills outlined above. I encourage you to ask questions either during a review session or outside of class. I am usually available via email most weekends and evenings. I also encourage you to work with your partner or group, except when specifically instructed to work as an individual. Simply copying someone else's work will be detected and addressed.

There is also help available in the accounting lab. You may see hours and make an appointment here:

<https://cob.unt.edu/lab/tutor>

Acceptable Student Behavior (source – UNT)

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 Center for Student Rights and Responsibilities 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. The Code of Student Conduct can be found at www.unt.edu/csrr

CANVAS

Since you are responsible for all updates to this course made through Canvas, it is imperative that you update your email and forwarding options within Canvas to an address that you check regularly. In order to receive course emails, follow these steps after logging on to Canvas through any of the numerous hyperlinks from the www.unt.edu website:

- 1) Click on “My Settings” in the upper right-hand corner of the screen. Next click on the “Edit Profile” button below your information. Edit the E-mail field to an email address that you check regularly. Now click the “Save” button.
- 2) Next click on the “My Tool Options” tab. Scroll down to the “Mail” section. Click on the box that says “Forward all mail messages to the e-mail address in my profile”. Scroll down to the bottom of the page and click the “Save” button.

You should now be able to receive emails that I send through Canvas to your email account. Please note it does not have to be your my.unt.edu address.

Grading:

Comprehensive Final on Data Analytics Content	325 points
Chapter Labs	445 points
RPA (UIPath Studio) Projects	100 points
Participation / Professionalism	30 points
Total	900 points

Letter grades will be assigned as a percentage of total possible points as follows:*

A = 90-100%, B = 80-89%, C = 70-79%, D = 60-69%, F < 60%

Plus and minus grading **will not** be used for this course.

*In the event that the final point distribution is significantly lower than the values provided, scaling may be necessary

Every attempt will be made to grade all work consistently, fairly, and timely. However, if you feel a grade has been recorded in error or a mistake has been made on any assignment or exam, please notify me during class, office hours, or contact me via a short written note or email, within one week of the return of the graded assignment/exam or the grade having been posted on Canvas. I will review the grade and make any appropriate changes. **If more than one week has elapsed since I have posted the grade on Canvas I am happy to answer questions but no grades will be changed.**

Your grades are private. For your own protection, you should not talk about any of your grades with another student – *even those in your project group*. If requested, I will provide you with information on your class standing at crucial times during the semester.

If allowed by University policies and procedures, an opportunity to participate in a research study might occur. If that opportunity does present itself, an incentive to participate *could (but not necessarily)* include a small amount of course credit.

Lab Projects

There will be various data analytics projects over the course of the semester, primarily: 1) weekly labs that are due every week, and 2) robotic process automation RPA project in the final week. All projects must be completed and uploaded individually, **collaboration with other students is permitted**. As previously mentioned, if you are 100% MacOS, you may have to collaborate with someone on the RPA projects (UIPath Studio is Window OS only). Proof of the lab completion will be provided by recording yourself (with narration) completing the lab (use

the screen capture software of your choice, or a strategically placed smartphone). After creating your .mp4 file, then upload it to YouTube (configuring it as Unlisted or Public – not Private). Then please upload that YouTube video link *and* the .mp4 file to Canvas under the appropriate lab. Be careful, uploading the actual .mp4 to Canvas can take some time (depends on your internet speed). See due dates for all labs – late work cannot be accepted because of the extremely tight deadlines required to meet the compressed schedule.

For RPA, you can download a 60 day copy of UiPath Studio (Windows OS only) from https://www.uipath.com/developers/studio-download?utm_source=GoogleSearch&utm_medium=cpc&utm_term=uipath%20download%20free%20trial-e&utm_content=496305657748&utm_campaign=StudioDownload&gclid=Cj0KCQiAnKeCBhDPArisAFDTLTL5zQWqEareklX2RfFDBjea761xyymmHnc6z1VdyLbtEsGK1AWcPol4aAu6oEALw_wcB&gclid=aw.ds

Please see Canvas for additional information and guidance for the analytics projects.

Final Exam

Final exam will be on the last day of class and must be completed individually. Unlike the data analytics assignments, no collaboration is permitted on the final.

Professionalism

A professional demeanor is an integral part of any business environment, especially in your preparation for a career in accounting. Professionalism in this environment implies a respect and courtesy for others. I expect students to maintain the highest standards of professionalism in the classroom. Asking for concessions that would violate the syllabus (e.g., attempts at turning in homework late, habitually missing class, asking me to fraudulently report your grade by adding or rounding points, etc.), are examples of unprofessional behavior that translated into a business environment would result in termination.

A link to the University Attendance Policy may be found below:

<https://policy.unt.edu/policy/06-039>

Feedback

You are always welcome to set up an appointment, or connect via Zoom for my virtual office hours to review your projects, or seek out feedback about your performance in class. Due to time constraints, privacy, the remote nature of this course, and other concerns, it is not always possible to hand back graded projects during class time. I am more than happy to spend the time with you to explain how your project grade was calculated.

Academic Integrity

No matter what your beliefs are on the cheating, DON'T. Your future as a professional accountant depends in part on others feeling that they can rely on what you say and do. A

large part of what you are selling as a professional accountant is your reputation.

The University of North Texas is committed to the maintenance of the highest standards of integrity and ethical conduct of its members. This level of ethical behavior and integrity will be maintained in this course. 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 Center for Student Rights and Responsibilities 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. Participating in the following (but not limited to) behavior violates academic integrity: (e.g., unauthorized collaboration on homework or assignments, plagiarism, multiple submissions of the same assignment, cheating on examinations, fabricating information, helping another person cheat, having unauthorized advance access to examinations, altering or destroying the work of others, and fraudulently altering academic records. The Code of Student Conduct can be found at www.unt.edu/csrr.

Academic dishonesty is defined in the UNT Policy on Student Standards for Academic Integrity. Any suspected case of academic dishonesty will be handled in accordance with the University policy and procedures. Possible academic penalties include a grade of "F" in the course. You will find the policy and procedures at <http://policy-dev.unt.edu/policy/06-003>

If I suspect that you have engaged in academic dishonesty, I will deal with the situation as outlined in the University policy referenced above. You will be allowed to remain in class during the entire time that the academic misconduct accusation is being investigated, adjudicated, and appealed. As noted above, the maximum academic penalty that can be assessed by an instructor is an F in the course. However, University officials use the academic misconduct information to decide if other misconduct sanctions are then to be applied, and the student has separate rights to appeal those decisions, remaining in class until all appeals are exhausted.

For our purposes in this particular class, **it is especially critical that you NOT take any of the following actions:**

1. Copying another individual's or group's answers.
2. Asking or pressuring another individual or group to help you with your individual or group project or exam.
3. Providing the above-prohibited assistance to another individual or group.
4. Representing someone else's work as your own.

Succeed at UNT

UNT endeavors to offer you a high-quality education and to provide a supportive environment to help you learn and grow. As a faculty member, I am committed to helping you be successful as a student. Here's how to succeed at UNT: Show up. Find support. Take control. Be prepared. Get involved. Be persistent. To learn more about campus resources and information on how you can achieve success, go to <http://success.unt.edu/>.

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 online at the end of the semester. This will, provide you a chance to provide input about this class. I am very interested in the feedback I get from students and encourage you to complete the survey honestly and in its entirety.

Students with Disabilities

The University of North Texas is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 – The Rehabilitation Act of 1973 as amended. The passage of new federal legislation entitled Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act; there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide reasonable accommodations to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at <http://www.unt.edu/oda/apply/index.html>. Also, you may visit the Office of Disability Accommodation in the University Union (room 321) or call them at (940)565-4323. If you need an accommodation, please contact me as soon as possible but at the latest by the second week of class. If you require accommodation for an exam, please notify me at least one week in advance to make the necessary preparations.

Inclement Weather

The class follows the standard University policy. Additionally, whenever you feel it is unsafe to come to class due to driving conditions, please do not come. Please notify me of the reason for your absence at the earliest possible opportunity.

Withdrawals

University policy relative to withdrawals will be followed. **Please consult with your academic advisor or UNT academic calendar for all relevant dates anent the last date you can:**

- Drop with an automatic grade of W
- Drop with a W if you are passing the course
- Last day you can drop a course at all
- **It is vital that you consult with your academic advisor prior to dropping any course. It can have dire effects on your financial aid and/or academic record.**
- **Becky Andrews in the Acctg Office is also available if the registrar's office is unavailable.**

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). The system sends voice messages (and text

messages upon permission) to the phones of all active faculty staff, and students. Please make certain to update your phone numbers at <http://www.my.unt.edu>. Some helpful emergency preparedness actions include: 1) know the evacuation routes and severe weather shelter areas in the buildings where your classes are held, 2) determine how you will contact family and friends if phones are temporarily unavailable, and 3) identify where you will go if you need to evacuate the Denton area suddenly. In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials.

Emergency Evacuation Procedures for Business Leadership Building:

Severe Weather: In the event of severe weather, all building occupants should immediately seek shelter in the designated shelter-in-place area in the building. If unable to safely move to the designated shelter-in-place area, seek shelter in a windowless interior room or hallway on the lowest floor of the building. All building occupants should take shelter in rooms 055, 077, 090, and the restrooms on the basement level. In rooms 170, 155, and the restrooms on the first floor.

Bomb Threat/Fire: In the event of a bomb threat or fire in the building, all building occupants should immediately evacuate the building using the nearest exit. Once outside, proceed to the designated assembly area. If unable to safely move to the designated assembly area, contact one or more members of your department or unit to let them know you are safe and inform them of your whereabouts. Persons with mobility impairments who are unable to safely exit the building should move to a designated area of refuge and await assistance from emergency responders. All building occupants should immediately evacuate the building and proceed to the south side of Crumley Hall in the grassy area, west of parking lot 24.

Mental Health Resources

UNT believes it is important to foster an environment that encourages students to maintain a standard of responsibility for self-care which includes the ability to respond adequately to one's emotional, physical, and educational needs. Some students who are distressed engage in behaviors that compromise their own welfare, as well as the welfare of the university community.

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 issue or its severity. Listed below are several resources on campus that can support your academic success and mental well-being:

1. Student Health and Wellness Center
1800 Chestnut St. Denton, TX 76201
940-565-2333
2. Counseling and Testing Services*
801 N. Texas Blvd, Denton, TX 76210 Suite 140
940-565-2741
3. UNT CARE Team*
940-565-2648

careteam@unt.edu

4. Psychiatric Services
940-565-2648
5. Individual Counseling*
940-369-8773

*Services are free of charge to University Students

If at any time you are feeling alone or in jeopardy of self-harm, reach out to the following:

- NATL Suicide Hotline: 800-273-8255
- Denton County MHMR Crisis Line 800-762-0157
- Denton County Friends of the Family Crisis Line 940-382-7273
- UNT Mental Health Emergency Contacts
 - During Office Hours (M-F 8am-5pm) 940-382-7273
 - After Hour Calls 940-565-2741
 - Crisis Text Line Text CONNECT to 741741
 - Live chat <http://www.suicidepreventionlifeline.org>

Access to Information – Eagle Connect

Your access point for business and academic services at UNT occurs within the my.unt.edu site <http://www.my.unt.edu>. All official communication from the university will be delivered to your Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward your e-mail: <http://eagleconnect.unt.edu/>

Retention of Student Records

The instructor of record maintains student records pertaining to this course in a secure location. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course will be retained for three semester following completion of the semester and then destroyed. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. You have a right to view your individual record; however, information about your records will not be divulged to other individuals without the proper written consent. You are encouraged to review the Public Information Policy and F.E.R.P.A. (Family Educational Rights and Privacy Act) laws and the university's policy in accordance with those mandates at the following link: <https://policy.unt.edu/policy/07-018>

Changes to the Syllabus

A syllabus is a tool to help you plan your time. Every effort is made to make the syllabus as complete as possible, but there may be occasions when changes are required. Your professor will announce any deviations from this syllabus through email and class announcements.

DISCLAIMER

All policies discussed herein are subject to the official University Regulations. If there is a discrepancy between any of my policies and the official UNT policies, the official UNT policy will supersede any policy outlined in this document.

SCHEDULE (SUBJECT TO CHANGE)

I will make the course schedule available on Canvas. Although the calendar is available on Canvas the first day of class, changes will likely occur during the semester. Therefore, the official course calendar will be kept on Canvas. All changes will be announced in class and/or via Canvas. You should refer to the syllabus posted on Canvas frequently in case of changes to the schedule.

NOTE: Central Standard Time (CST) is six hours behind Greenwich Mean Time (GMT-6)
Central Daylight Time (CDT) is five hours behind Greenwich Mean Time (GMT-5)

Week #	Week of:	TOPIC
Week 1	8/21	Course Introduction, Materials, Projects, and Assignments Overview
		Chapter One – Data Analytics for Accounting and Identifying the Questions
Week 2	8/28	Chapter Two – Mastering the Data
		DUE: Lab 2-2 due next Monday, at 11:59 pm CST. Submit via Canvas. Lab 2-4 due next Monday, at 11:59 pm CST. Submit via Canvas. Lab 2-6 due next Monday, at 11:59 pm CST. Submit via Canvas.
Week 3	9/4	Statistics Review – Descriptive statistics and hypothesis testing
		Statistics Review – Descriptive statistics and hypothesis testing
		Statistics Review – Confidence intervals, effect sizes, and univariate linear regression
		Statistics Review – Confidence intervals, effect sizes, and univariate linear regression
Week 4	9/11	Chapter Three – Performing the Test Plan and Analyzing the Results
		DUE: Lab 3-1 due next Monday, at 11:59 pm CST. Submit via Canvas.

		<p>Lab 3-4 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 3-5 due next Monday, at 11:59 pm CST. Submit via Canvas.</p>
Week 5	9/18	Chapter Four – Communicating Results and Visualizations
		<p>DUE: Lab 4-3 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 4-4 due next Monday, at 11:59 pm CST. Submit via Canvas.</p>
Week 6	9/25	Chapter Five – The Modern Accounting Environment
		<p>DUE: Lab 5-3 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 5-4 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 5-5 (through Part 1 only) due next next Monday, at 11:59 pm CST. Submit via Canvas.</p>
Week 7	10/2	Chapter Six – Audit Data Analytics
		<p>DUE: Lab 6-1 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 6-2 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 6-3 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 6-4 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 6-5 due next Monday, at 11:59 pm CST. Submit via Canvas.</p>
Week 8	10/9	Chapter Seven – Managerial Analytics

		<p>DUE: Lab 7-3 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 7-4 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 7-5 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 7-6 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 7-7 due next Monday, at 11:59 pm CST. Submit via Canvas.</p>
Week 9	10/16	Chapter Eight – Financial Statement Analysis
		<p>DUE: Lab 8-1 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 8-2 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 8-3 due next Monday, at 11:59 pm CST. Submit via Canvas.</p> <p>Lab 8-4 due next Monday, at 11:59 pm CST. Submit via Canvas.</p>
Week 10	10/23	Chapter Nine – Tax Analytics
		<p>DUE: April 30th at 11:59 pm CDT. Submit via Canvas.</p> <p>Lab 9-2 due Friday, at 11:59 pm CDT. Submit via Canvas.</p> <p>Lab 9-3 due Friday, at 11:59 pm CDT. Submit via Canvas.</p> <p>Lab 9-4 due Friday, at 11:59 pm CDT. Submit via Canvas.</p> <p>Lab 9-5 due Friday, at 11:59 pm CDT. Submit via Canvas.</p>
Week 11	10/30	Data Analytics Oddities

Week 12	11/6	RPA
Week 13	11/13	Python in Data Analytics - begin
Week 14	11/20	Thanksgiving Break - enjoy
Week 15	11/27	Python in Data Analytics - conclusion
Week 16	12/4	Data Analytics – Future Directions / Technologies
Finals	Date/time TBD	Final exam date/time TBD – in class, lockdown browser required, bring/check out a laptop, 65 MC questions – 60 minutes – open notes, open book – no digital media – only paper.