Welcome to ADTA 4240

I am so excited to have you in class this semester, and I look forward to working with all of you throughout the course.

• ADTA 4240: Data Wrangling

• Credit Hours: 3

• Class Time: 100% Online

• Class Location: GAB 112 – Denton Campus

Instructor Contact Information

• Dr. LeAnn K. Boyce

• Office Location: GAB 110C

• Office Hours: Thursdays 11 am – 12:30 pm and 2 pm – 5 pm and Wednesdays online from 6 pm to 7 pm. Please make an appointment to ensure a space. I will also be happy to schedule a time outside office hours if needed.

• Email: <u>leann.boyce@unt.edu</u>

Communication and Interaction with Instructor:

Communication is essential for a successful semester!

I look forward to getting to know and working with you all. Contact me anytime using my UNT email (<u>Leann.Boyce@unt.edu</u>). I will check my email daily and will make every effort to respond within 24 hours. If you have not heard back from me in 24 hours, please feel free to send another email. During the weekend, after Friday at 5 pm, I will get to my email as soon as possible on Monday. Please do NOT email me through Canvas, as I do not check this as frequently as I do my UNT email. Here is a great website provided by CLEAR to give you some communication tips for communicating online: *CLEAR has a webpage for students that provides Online Communication Tips*

About Your Professor

Greetings and welcome to ADTA 4240. I would like to share a few details about my background with you. Since Fall 2021, I have been an Assistant Clinical Professor in the Advanced Data Analytics Department at Toulouse Graduate School. In addition to my Ph.D., I hold master's degrees in Advanced Data Analytics, Government, and Information Science, focusing on Health Informatics. My career at UNT started in the Fall of 2013 as a master's student, where I worked for six years as a teaching assistant and for one year as a teaching fellow before becoming an adjunct professor. As part of my master's degree program (Government) at Texas Woman's University, I also worked as a teaching assistant/fellow.

It is a pleasure to have you in class this semester, and I look forward to working with you.

Teaching Philosophy

As a professor, I aim to provide students with clear guidance and effective communication to create a rewarding educational environment. My experience has shown that students will succeed in my courses when they comprehend the course's learning objectives, as outlined in the syllabus, along with a well-structured course calendar highlighting assignment deadlines. Through this framework, students can establish a sense of purpose and organization in their work.

I have found that students who understand how assignments contribute to their personal and professional growth are more motivated to produce high-quality work. In addition, it is imperative that students receive timely, constructive feedback on their assignments and exams to encourage a positive atmosphere of continuous improvement, which enhances their self-confidence and abilities. Additionally, I want my students to know that I am flexible in my approach to dealing with life's challenges. As long as academic standards are maintained, I will acknowledge students' diverse circumstances if a "life event" prevents them from submitting their work on time. Regarding this topic, please refer to the syllabus.

In addition to academic excellence, I strive to foster a sense of community that is inclusive and supportive. As a result of this environment, the student is not only provided with subject-specific knowledge but also is given the opportunity to develop valuable interpersonal skills, which are crucial for future professional success. As a professor, I am committed to guiding students toward academic excellence while equipping them with the aptitude to excel in their chosen career fields.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Required prerequisite courses: None

Materials – Text, Readings, Supplementary Readings

No textbook is required for this course, but we will have articles to read throughout the semester (these are listed in the weekly modules under content). These books are NOT required but you might find them beneficial for extra reinforcement of the material.

- Batchelder, W. (2024). Data Governance Handbook: A Practical Approach to Building Trust in Data. ISBN 978-1803240725, 1803240725
- Lakshmann, V. (2022) Data Science on the Google Cloud Platform. O'Reilly. ISBN:978-1098118952, 1098118952
- Mucchetti, M. (2020). BigQuery for Data Warehousing. Apress. ISBN: 978-1484261859

Course Description

Introduction to collecting, wrangling, storing, managing, retrieving and processing datasets. Topics include fundamental concepts and techniques of data engineering, large-scale data harvesting, data wrangling methodologies, and storage and process architectures. Emphasizes applications and includes many hands-on projects.

Course Objectives

By the end of this course, students will be able to:

- 1. Develop an understanding of the fundamental concepts of modern data management, including data life cycle, data scaling, structuring data, and data lakes concepts.
- 2. Develop knowledge and skills in data harvesting, storing, retrieving, and processing using cloud technology.
- 3. Develop knowledge and skills in cleansing/wrangling data with Google Cloud Platform resources.
- 4. Develop a foundational understanding of data querying.

Course Topics

- 1. Introduction to Big Data
- 2. Structured and Unstructured Data
- 3. Data Life Cycle
- 4. Introduction to Google Cloud Platform
- 5. Introduction to other Cloud Platforms
- 6. Introduction to Operating Systems
- 7. Data Preparation
- 8. Data Quality
- 9. Data Queries

COURSE REQUIREMENTS

- The student will be responsible for daily checking the UNT email announcements and other types of class communication.
- The student will access and follow all course instructions in the syllabus, announcements, assignments, and all other class-related documents.
- The student will complete all the class assignments in the time frame specified in the class documents, including the course calendar, to participate effectively in class activities.

Assessing Your Work

- 1. There will be ten assignments throughout the course. (20%)
- 2. Students are required to submit their homework on time.
- 3. There will be one midterm exam. (30%). Students are required to submit their midterm on time.
- 4. There will be a final project. (30%). Students will submit a final project by the deadline provided on the Course Calendar.
- 5. There will be one final exam (10%). Students will submit a final exam by the deadline provided on the Course Calendar.
- 6. Class attendance: This is made up by watching class video each week. (10%)

The total percentage for the course is 100%.

The final letter grade will be determined as follows:

• A: $90 - 100 \cdot B$: $80 - 89 \cdot C$: $70 - 79 \cdot D$: $60 - 69 \cdot F$: < 60

Make-Up Policy

No make-up assignments or exams will be offered except for being approved in advance. Students will be required to provide the necessary documentation.

Late-work Policy

- All assignments are to be submitted by the due date and time.
- The deadline for submitting assignments (except the final) is 11:59 PM on the due date.
- Late submissions will be subject to a 25% penalty after the first day. **No submissions will be accepted later than 3 days** after the deadline and NO late submission of the midterm or final. The **first late submission** will **not** be given a late penalty. This will be the one and only late submission accepted without a penalty.

NOTE: Late work is subject to the penalty described above unless previously approved by the instructor.

Academic Integrity

ADTA students must read and adhere to the academic integrity expectations of the university, department, and course. The consequences of violating Academic Integrity expectations are outlined below.

• UNT's Academic Integrity Policy 06.003

Policy Statement: The University of North Texas promotes the integrity of learning and embraces the core values of trust and honesty. Academic integrity is based on educational principles and procedures that protect the rights of all participants in the educational process and validate the legitimacy of degrees awarded by the University. In the investigation and resolution of allegations of student academic dishonesty, the University's actions are intended to be corrective, educationally sound, fundamentally fair, and based on reliable evidence.

Please understand that "Academic Misconduct," in this policy, means the intentional or unintentional action by a student to engage in behavior in the academic setting, including, but not limited to, cheating, fabrication, facilitating academic misconduct, forgery, plagiarism, and sabotage. Also, please note that I will stick to this policy without any leniency! I want the UNT Advanced Data Analytics degree to mean that you earned your degree and that it is well respected in the industry.

Advanced-Data Analytics Integrity Policy

Breakdown of Department Academic Integrity Policy

Table on the breakdown of AI policy

Other **Penalty** The minimum penalty is a 0 for the assignment AND no grade higher 1st Academic than a "B" can be earned in the All Academic Integrity offenses course. Other penalties may be will be reported to the UNT **Integrity** Offense assessed by the course instructor up Academic Integrity Office. to course failure, depending on the severity of the offense. A second offense is defined as a separately reported offense either in the same class as the 1st offense or in a different course. Students suspended for a second Academic 2nd Academic Integrity violation will not be Suspension from the **Integrity** allowed to enroll in ADTA ADTA program. Offense courses for 1 calendar year. For students who had a single Academic Integrity violation prior to Fall 2023, a second violation will result in suspension from the ADTA program. Students committing a 3rd Academic Integrity offense will be dismissed from the 3rd Academic program. For students who had **Integrity Dismissal** from the ADTA program. multiple Academic Integrity

My ADTA 4240 Class Policy

Offense

Each student in my class can improve by doing their own work and trying their hardest. Students who use other people's work with or without consent or without citations will violate UNT's Academic Integrity Policy. Please read and follow this important set of guidelines for your academic success. (https://policy.unt.edu/policy/06-003). If you have questions about this or any UNT policy, please email or discuss this during my office hours. Any student suspected of plagiarism or improper use of AI and found guilty will receive a zero for the assignment. This may be increased to failing the course, depending on the severity of the violation. In addition, the student will be reported to the Academic Integrity Office. If there is a second issue of suspected plagiarism/improper AI use (and found guilty), the student will receive a zero for the course and will be once again reported to the Academic Integrity Office (Please see the ADTA

violations prior to Fall 2023, any

additional violation will result in

dismissal from the ADTA

program.

Department sanctions above). Again, I stick to this policy without question. Please do not take the risk; it is not worth it!

• Usage of AI

The availability of large language models, such as ChatGPT (chat.openai.com), is rapidly changing the tools available to students and the "real world." The view we will take in this class is that since these tools are widely used in the "real world," banning their use in our class does not make sense. That said, while you may use this tool to help you generate ideas, **you may not use the tool to create and submit your work**. You must acknowledge and cite the source if you choose to use such a tool. This means including quotation marks to indicate statements generated by ChatGPT or other AI tools. Additionally, you must **ALWAYS** include all prompts and output in an appendix.

Lastly, you must understand the content generated by these tools is often incorrect, and it is your responsibility to assess the validity of any output. If used incorrectly and/or cited improperly, this is considered a form of plagiarism and will incur the penalty previously mentioned above in the Academic Integrity Section. If I find a submission suspect, I will follow the same sanctions as written in the above section on plagiarism. We will talk more about this throughout the course.

Attendance Policy

Attendance is not required for the weekly meetings. As long as one student shows up I will hold class. The class will be recorded and you are required to watch the video.
 Participation grade is made up by watching all posted videos and will be recorded weekly.

Virtual Classroom Citizenship

The same guidelines that apply to traditional classes should be observed in the virtual classroom environment (if needed). Please use proper netiquette when interacting with class members and the professor.

Class Schedule

The following is a tentative schedule. Should any change become necessary, it will be announced via the UNT email. It is the student's responsibility to check for changes in the schedule.

Week	Dates	Topic(s)	Assignment(s) Due 11:59 pm Sundays
1	8/18-8/24	Course Introduction, Plagiarism, and	Survey
		Overview of Modern Data Concepts	Plagiarism Quiz
		Big Data and the Data Life Cycle	Assignment #1
			Assignment #2

2	8/25-8/31	Introduction to Google Cloud Platform (GCP) Overview of Other Cloud Platforms (AWS, Azure, etc.)	Assignment #3 Assignment #4
3	9/1 – 9/7	Introduction to Operating Systems: Basic Operating Systems Foundations for Data Engineering Data Quality: Accuracy, Completeness, Consistency, Timeliness, Believability, and Value Addition	Assignment #5
4	9/8 – 9/14	Fundamentals of Data Wrangling and Cleansing using SQL Midterm	Assignment #6 Midterm
5	9/15 – 9/21	Data Queries I: Basic Data Querying with SQL Data Queries II: Querying and Joining Multiple Tables in SQL	Assignment #7 Assignment #8
6	9/22-9/28	Case Study I: Data Collection and Preparation (Gathering, Cleaning, and Organizing Data) Case Study II: Building and Executing SQL Queries on Stored Data Final Project Overview	Assignment #9 Assignment #10
7	9/29-10/5	Final Project Due	Work on Final Project
8	10/6-10/9	Final Exam	

Course Evaluation

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available toward the end of the semester to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" (noreply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website or email spot@unt.edu.

Access & Navigation

Access and Log-in Information

This course was developed and will be facilitated utilizing the University of North Texas' resources. To be able to access the UNT systems, the student will need his/her EUID and password. If you do not know your EUID or have forgotten your password, please visit the website at http://ams.unt.edu

Technical Assistance

Part of working in the online environment involves dealing with the inconveniences and frustration that can arise when technology breaks down or does not perform as expected. Here at UNT, we have a Student Help Desk that you can contact for help with Canvas or other technology issues.

UNT Help Desk: UIT Student Help Desk site (http://www.unt.edu/helpdesk/index.htm)

Email: helpdesk@unt.eduPhone: 940-565-2324

• In-Person: Sage Hall, Room 130

• Walk-In Availability: Call before coming to campus

• Telephone Availability:

o Sunday: noon-midnight

o Monday-Thursday: 8 am-midnight

Friday: 8am-8pmSaturday: 9am-5pm

• Laptop Checkout: 8am-7pm

• For additional support, visit <u>Canvas Technical</u> <u>Help</u> (https://community.canvaslms.com/docs/DOC-10554-4212710328)

Scholarly Expectations

All works submitted for credit must be original works 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.

Instructor Responsibilities and Feedback

The instructor is responsible for responding to student questions about assignments and projects, about the course material presented, and for providing additional resources to enhance understanding of course material. Timely feedback is essential for student success and the instructor is responsible for providing timely feedback to students throughout the course. The instructor will grade submitted assignments and will post grades for students within 10 days of the assignment's due date.

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 individuals' 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 <u>Engagement Guidelines</u> (https://clear.unt.edu/online-communication-tips) for more information.

Incompletes

This course will observe the <u>UNT policy on incompletes</u>, found here: <u>http://registrar.unt.edu/grades/incompletes</u>

Policy on Server Unavailability or Other Technical Difficulties

The University is committed to providing a reliable online course system to all users. However, in the event of an unexpected server outage or any unusual technical difficulty which prevents students from completing a time-sensitive assessment activity, the instructor will extend the time windows and provide an appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and also contact the UNT Student Help Desk: helpdesk@unt.edu or 940.565.2324. The instructor and the UNT Student Help Desk will work with the student to resolve any issues at the earliest possible time.

Copyright Notice

Some or all of the materials on this course Web site may be protected by copyright. Federal copyright law prohibits the reproduction, distribution, public performance, or public display of copyrighted materials without the express and written permission of the copyright owner unless fair use or another exemption under copyright law applies. Additional copyright information may be located at http://copyright.unt.edu

Administrative Withdrawal

This course will observe the UNT policy on academic withdrawal found here: https://deanofstudents.unt.edu/withdrawals.

Syllabus Change Policy

Changes to the course syllabus or due dates are not anticipated but should they be necessary, the instructor will provide ample notification to students to allow them to complete assignments in a timely manner without penalty.

UNT GENERAL POLICIES

Student Conduct and Discipline: Student Handbook.

You are encouraged to become familiar with the University's Policy of Academic dishonesty found in the Student Handbook. The content of the Handbook applies to this course. If you are in doubt regarding the requirements, please consult with me before you complete any requirements of the course.

The UNT Code of Student Conduct can be found here: https://deanofstudents.unt.edu/sites/default/files/code of student conduct.pdf

ADA Policy

The University of North Texas makes reasonable academic accommodations for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to the faculty to begin a private discussion regarding your specific needs in a course. Note that students must obtain a new letter of 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 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 see the Office of Disability Accommodation website at http://disability.unt.edu/. You may also contact them by phone at 940.565.4323.

Add/Drop Policy

The University of North Texas Add Drop Policy can be found at the following link: http://registrar.unt.edu/registration/fall-add-drop

Important Notice for F-1 Students taking Distance Education Courses: Federal Regulation

To read detailed Immigration and Customs Enforcement regulations for F-1 students taking online courses, please go to the Electronic Code of Federal Regulations website at http://www.oea.gov/index.php/links/electronic-code-of-federal-regulations. The specific portion concerning distance education courses is located at "Title 8 CFR 214.2 Paragraph (f) (6) (i) (G)" and can be found buried within this document: http://www.gpo.gov/fdsys/pkg/CFR-2012-title8-vol1-sec214-2.xml The paragraph reads:

(G) For F-1 students enrolled in classes for credit or classroom hours, no more than the equivalent of one class or three credits per session, term, semester, trimester, or quarter may be counted toward the full course of study requirement if the class is taken online or through distance education and does not require the student's physical attendance for classes, examination or other purposes integral to the completion of the class.

University of North Texas Compliance

To comply with immigration regulations, an F-1 visa holder within the United States may need to engage in an on-campus experiential component for this course. This component (which must be approved in advance by the instructor) can include activities such as taking an on-campus exam, participating in an on-campus lecture or lab activity, or other on-campus experiences integral to the completion of this course. If such an on-campus activity is required, it is the student's responsibility to do the following: (1) Submit a written request to the instructor for an on-campus experiential component within one week of the start of the course. (2) Ensure that the activity on campus takes place and the instructor documents it in writing with a notice sent to the International Student and Scholar Services Office. ISSS has a form available that you may use for this purpose. Because the decision may have serious immigration consequences, if an F-1 student is unsure about his or her need to participate in an on-campus experiential component for this course, s/he should contact the UNT International Student and Scholar Services Office (telephone 940-565-2195 or email internationaladvising@unt.edu) to get clarification before the one-week deadline.

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.

Sexual Assault Prevention

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex and therefore prohibit 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. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off-campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Student Verification

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See <u>UNT Policy 07 - 002 Student Identity Verification</u>, <u>Privacy</u>, and <u>Notification and Distance Education Courses</u> (https://policy.unt.edu/policy/07-002).

ACADEMIC SUPPORT & STUDENT SERVICES

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:

- <u>Student Health and Wellness Center (https://studentaffairs.unt.edu/student-health-andwellness-center)</u>
- <u>Counseling and Testing Services .(https://studentaffairs.unt.edu/counseling-and-testingservices)</u>
- UNT Care Team (https://studentaffairs.unt.edu/care)
- <u>UNT Psychiatric Services</u> (https://studentaffairs.unt.edu/student-health-and-wellnesscenter/services/psychiatry)
- <u>Individual Counseling</u> (https://studentaffairs.unt.edu/counseling-and-testingservices/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 <u>add your pronouns to your Canvas account</u> 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)
- Financial Aid (https://financialaid.unt.edu/)
- <u>Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)</u>
- Career Center (https://studentaffairs.unt.edu/career-center)
- Multicultural Center (https://edo.unt.edu/multicultural-center)
- <u>Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testingservices)</u>
- Pride Alliance (https://edo.unt.edu/pridealliance)
- UNT Food Pantry (https://deanofstudents.unt.edu/resources/food-pantry)

Academic Support Services

- Academic Resource Center (https://clear.unt.edu/canvas/student-resources)
- Academic Success Center (https://success.unt.edu/asc)
- UNT Libraries (https://library.unt.edu/)
- Writing Lab (http://writingcenter.unt.edu/