University of North Texas
College of Information
Department of Information Science

INFO 4670 Data Analysis and Knowledge Discovery

Fall 2026

401

Version 8.12.2026

Course Syllabus

1. Course Information

Instructor: Fengjiao Tu
Email: fengjiao.tu@unt.edu
(I prefer Canvas Message as I am able to respond to you sooner than email.)
Office: Discovery Park, Room E292L
Office Hour: Request a virtual meeting via Canvas messages
Class Time and Location: This is a 3-credit-hour, fully online asynchronous course delivered through the Canvas LMS. There are no scheduled class meetings. Course content is delivered through recorded lessons and weekly learning modules, which open on Monday and remain available throughout the semester. For the weekly schedule and due dates, please refer to the Course Schedule. All course materials are accessible via Canvas.

*Use **UNT Canvas** Discussions and Canvas Messages tools as well as the email above for all course-related communication.

Course Description
This course will introduce the student to data analysis, data mining, text mining, and knowledge discovery principles, concepts, theories, and practices. It is designed for aspiring or practicing information professionals and covers the basics of working with data from a hands-on and practical perspective. The course incorporates recorded lectures, online discussions, the practice of learned concepts, and readings. Students will learn how to approach data and data mining tasks and techniques using Python (via Google Colab) and Microsoft Excel through practice exercises and instructor-led

training. No prior programming experience is required. Students will also learn the basic principles and theories of data mining techniques and the application of data mining and knowledge discovery tools.

Course Objectives

After completing this course, the learner should be able to:

- Participate actively in class and community discussions by analyzing, constructing, and evaluating information from textbooks, external readings, student research, and course activities.
- Understand the fundamental principles, concepts, theories, and practices of data analysis, data mining, and knowledge discovery, and explain the interplay among them.
- Apply acquired knowledge to solve real-world problems using provided datasets, and construct bibliographies in APA 7th edition format from scholarly sources.
- Write a high-quality data analysis report that demonstrates mastery of course content and professional communication standards.

Required Textbook

- Data Mining: Concepts and Techniques (The Morgan Kaufmann Series in Data Management Systems) 4th Edition by Jiawei Han (Author), Micheline Kamber (Author), Jian Pei (Author).

  https://discover.library.unt.edu/catalog/b5874735

Required Readings & Supplementary Readings
Required readings are listed on the course syllabus and under Modules within Canvas. Other supplemental readings will be provided in the course learning modules.

2. Course Schedule

No.	Time	Module	Assignment
1	Aug 17	Module 1: Introduction to data analysis and knowledge discovery	Self-Introduction Learning Need Survey Quiz 1
2	Aug 24	Module 2: Data quality	Quiz 2 Set Up Repository
3	Aug 31	Module 3: Making sense of Data through Visualization	Assignment 1
4	Sept 7	Module 4: Exploratory Data Analysis	Quiz 3 Discussion 1
5	Sept 14	Module 5: Data preprocessing, cleaning, and operation	Assignment 2
6	Sept 21	Module 6: Mining frequent patterns, associations, and correlations	Quiz 4 Discussion 2 Term Project 1
7	Sept 28	Module 6: Mining frequent patterns, associations, and correlations	Assignment 3
8	Oct 5	Module 7: Data mining techniques: classification 1	Quiz 5 Discussion 3
9	Oct 12	Module 7: Data mining techniques: classification 1	Assignment 4

10	Oct 19	Module 8: Data mining techniques: classification 2	Quiz 6 Discussion 4 Term Project 2
11	Oct 26	Module 8: Data mining techniques: classification 2	Assignment 5
12	Nov 2	Module 9: Data mining techniques: clustering	Quiz 7 Discussion 5 Peer review
13	Nov 9	Module 9: Data mining techniques: clustering	Assignment 6
14	Nov 16	Module 10: Time series data analysis (Optional)	Final Project
15	Nov 23	Thanksgiving Day (No class)	
16	Nov 30	Work on Term Project	

Note: Canvas = No class meeting. Modules open on Monday (the date listed). All assignments are due by Sunday 11:59 PM of the same week; the Final Project is due December 6. This schedule is subject to change. If a change is made to the syllabus, students will be notified through the announcement option in Canvas.

3. Assessment & Grading

Assignment & Quiz	Points Possible
Self-Introduction	10
Learning Need Survey	10
Set Up Repository	10
Quiz 1	10
Quiz 2–7	20 × 6 = 120
Assignment 1–6	70 × 6 = 420
Discussion 1–5	20 × 5 = 100
Term Project 1	50
Term Project 2	60
Peer Review (of Term Project 2)	20
Final Project	190
Extra points (SPOT)	10
Extra points (TBP)	40
Total	1000 (+50 extra)

Late Work

All students will have a 1-time excuse for late submission. Any late work after the 1- time excuse will not be accepted and be assigned zero automatically. Group work or the final project deliverables will not be accepted after the due date and time. If you have a serious illness or emergency that prohibits the completion of the work, please contact me right away to discuss. However, if you wait until the very last minute to submit your work on Canvas and then attempt to negotiate with the instructor to re-open a submission link, these requests will not be granted.

The UNT scale for **grading** is as follows:

A = 900 - 1000
B = 800 - 899
C = 700 - 799
D = 600 - 699
F = 599 and below

4. Technology and Skills Course

Technical Tools:

The following are the software that is needed for this course:

- **Devices and Tools required:**
- A personal computer, either Windows or Mac OS, capable of accessing Canvas.
- **Microsoft Excel 2013 or above**
- **Google Colab (free, browser-based Python environment — no installation required; a Google account is needed)**

Technical Assistance:

Part of working with technology involves dealing with the inconveniences and frustrations that can arise when it breaks down or does not perform as expected. At UNT we have a Student Help Desk that you can contact for help with Canvas or other technical issues.

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

Email: helpdesk@unt.edu
Phone: 940-565-2324
Walk-in: Sage Hall, Room 330
Regular hours are maintained to provide support to students. Please refer to the website for updated hours.

UNT IT Resources

UNT Portal: http://my.unt.edu
Student Computer Lab (including locations and hours of operation) can be located at: https://computerlabs.unt.edu/location-labs
UNT UIT Cloud Lab: https://it.unt.edu/cloudlab

5. UNT Policies

APA 7th edition References & Citation

Students are expected to provide citations and references in American Psychology Association (APA) format and style. The APA 7th edition style should be used in this course. See the library guide for more information: https://guides.library.unt.edu/citations-style-guides/apa The UNT Writing Center also provide resources for students on writing process, references, and elements or academic paper, please see Handouts page for more information: https://writingcenter.unt.edu/handouts

Netiquette/Online Engagement
Students are expected to participate online and interact with their peers and the instructor in the Canvas LMS in a respectful way. Keep in mind that we are all human and we are all unique, thus we should strive to communicate effectively online and seek understanding and clarification with each other. CLEAR has online communication tips: https://clear.unt.edu/online-communication-tips as a resource for students.

Assignment Policy
Assignment due dates are shown in the Course Schedule above and in the Canvas grade book. Each assignment will have instructions and associated rubrics for students to view Canvas.

Instructor Responsibilities and Feedback
As an instructor for this course, my responsibility in the course includes helping students grow and learn, providing clear instructions for projects and assessments, answering questions about assignments, identifying additional resources as necessary, providing grading rubrics, and updating course content. Also, I will respond to emails or Canvas messages. Assignment grades and feedback will be provided one week after the due date.

Incomplete
An Incomplete Grade ("I") is a non-punitive grade given only during the last one-fourth of a term/semester and only if a student (1) passes the course and (2) has a justifiable and documented reason, beyond the control of the student (such as serious illness or military service), for not completing the work on schedule. The student must arrange with the instructor to finish the course at a later date by completing specific requirements. Please refer to http://essc.unt.edu/registrar/academic-record-incomplete.html for more information. It is your responsibility to contact the instructor to request an incomplete and discuss requirements for completing the course. If you do not remove the incomplete within one calendar year, you will receive a grade of F.

Technical Difficulties with Canvas Platform
The University is committed to providing a reliable online course system to all users. However, in the event of any 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 appropriate accommodation based on the situation. Students should immediately report any problems to the instructor and contact the UNT Student Help Desk: helpdesk@unt.edu or 940.565.2324 and obtain a ticket number. The instructor and the UNT Student Help Desk will work with the students to resolve any issues at the earliest possible time.

Diversity and Inclusion
As members of the UNT community, we have all made a commitment to being part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation so we will work as a class to collaborate in ways that encourage inclusivity.

COVID-19 Related Absences
While attendance is expected as outlined above, all of us need 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 attend the online class because you are ill, or due to a related issue regarding COVID-19. You must communicate with me as soon as possible so I can determine what types of accommodation to provide. As of April 29, 2022, the university has updated its COVID-19 guidelines.

Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, 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.

The ***Department of Information Science*** has specific guidelines on violation of the Academic Integrity Policy. See https://informationscience.unt.edu/departmental-guidelines for more information. The following grading penalty is applied to all students enrolled in courses offered in the IS department:

- First Offense: A zero will be given for the assignment.
- Second Offense: A letter grade F (fail) will be given for the course and entered in the gradebook.
- Students who are at a practicum site will be denied or deferred for one semester.

Per UNT Policy 06.003, the course instructor retains the right to determine specific sanctions for their course and to set additional policies and procedures that do not conflict with DIS or UNT policies.

ADA Policy

UNT makes reasonable academic accommodation 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 a student with an accommodation letter to be delivered to the faculty to begin a private discussion regarding one's specific course needs. Students may request accommodation at any time; however, ODA notices of 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 accommodation for every semester and must meet with each faculty member before implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

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 investigations 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. Coursework 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 records; 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 students to conduct apply to all instructional forums, including University and electronic classrooms, labs, discussion groups, field trips, etc. Visit UNT's Code of Student Conduct (https://deanofstudents.unt.edu/conduct) to learn more.

Access to Information - Eagle Connect
Students' access points for business and academic services at UNT is located at: my.unt.edu. All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward email to Eagle Connect (https://it.unt.edu/eagleconnect).

Withdrawal
Withdrawal: See *UNT Undergraduate Catalog* for policies and UNT semester schedule for deadlines. A grade of withdraw (W) or withdraw-failing (WF) will be given depending on your participation and grades to date. If you simply disappear and do not file a formal UNT withdrawal form, you may receive a grade of F. See UNT Registration office page for more information

https://registrar.unt.edu/registration

Student Evaluation Administration Dates
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 during weeks 9 to 10 (during Summer 10 Weeks Term) 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" (no- reply@iasystem.org) with the survey link. Students should look for 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 (http://spot.unt.edu/) or email spot@unt.edu.

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

Use of Student-Created Work

A student owns the copyright for all work (e.g. software, photographs, reports, presentations, and email postings) he or she creates within a class, and the University is not entitled to use any student work without the student's permission unless all the following criteria are met:

The work is used only once.
The work is not used in its entirety.
Use of the work does not affect any potential profits from the work. The student is not identified.
The work is identified as student work.
If the use of the work does not meet all the above criteria, then the University office or department using the work must obtain the student's written permission.

Transmission and Recording of Student Images in Electronically Delivered Courses

No permission is needed from a student for his or her image or voice to be transmitted live via videoconference or streaming media, but all students should be informed when courses are to be conducted using either method of delivery. In the event an instructor records student presentations, he or she must obtain permission from the student using a signed release to use the recording for future classes in accordance with the Use of Student-Created Work guidelines above.

Instructors who video-record their class lectures with the intention of re-using some or all of the recordings for future class offerings must notify students on the course syllabus if students' images may appear in the video. Instructors are also advised to provide accommodation for students who do not wish to appear in class recordings. Example: This course employs lecture capture technology to record class sessions. Students may occasionally appear in the video. The lecture recordings will be available to you for study purposes and may also be reused in future course offerings. No notification is needed if only audio and slide capture is used or if the video only records the instructor's image.

However, the instructor is encouraged to let students know the recordings will be available to them for study purposes.

Class Recordings & Student Likenesses

Synchronous (live) sessions in this course will be recorded for students enrolled in this class section to refer to throughout the semester. Class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

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:

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)
UNT Care Team (https://studentaffairs.unt.edu/care)
UNT Psychiatric Services (https://studentaffairs.unt.edu/student-health-and-wellness-center/services/psychiatry)
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 euIDs10 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) Financial Aid (https://financialaid.unt.edu/)
Student Legal Services (https://studentaffairs.unt.edu/student-legal-services)
Career Center (https://studentaffairs.unt.edu/career-center)
Multicultural Center (https://edo.unt.edu/multicultural-center)
Counseling and Testing Services (https://studentaffairs.unt.edu/counseling-and-testing-services)
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/)