University of North Texas

College of Information

Department of Information Science

INFO 4206 Information Retrieval System

Instructor Information

Name: Ting Wang

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Office Hours: Every Tuesday, 9:00 A.M. – 11:00 A.M. Students are also welcome to make an appointment with the instructor at any time to discuss course-related questions, issues, or concerns. Please send an email to the instructors to schedule a meeting, including during the office hours.

Course Description, Structure, and Objectives

Course Format: 100% online course

> **F-1 Visa Regulations**: Federal regulations state that students may apply only 3 fully-online semester credit hours (SCH) to the hours required for full-time status for F-1 Visa (DOC) holders. Full-time status for F-1 Visa students is 12 hours for undergraduates and 9 hours for graduate students

Course Description: Computer-based storage and retrieval of textual, pictorial, graphic, and voice data. Addresses questions about how users interact with information retrieval (IR) systems, their components, evaluation, and their impact on society. The issues of representation, the nature of the query, and other aspects of the system are examined.

Course length: 16 weeks

Number of Modules: 16 Modules

Learning Objectives:

1. Develop a fundamental understanding of information retrieval concepts, including text representation, indexing, and query processing, to comprehend how modern information retrieval systems operate.

2. Apply ranking models, scoring techniques, and evaluation methods to design, optimize, and assess the performance of IR systems.

3. Explore advanced topics in IR, such as machine learning for classification, clustering, and structured retrieval, to address complex information retrieval challenges in diverse contexts.

4. Analyze the architecture and functionality of web search engines, link analysis, and enterprise search systems while examining their applications in professional, academic, and large-scale web environments.

Required Textbooks

Manning, C. D., Raghavan, P., & Schütze, H. (2009). Introduction to information retrieval. Cambridge University Press.

You can access the book online for free. However, due to the website's instability, I strongly recommend purchasing a printed or electronic version of the textbook. **Being unable to access the textbook cannot be a reason to extend the submission deadline**.

Course Requirements/Schedule

1. Module Activities (40% of total grade)
Purposes: Module activities allow the students to understand key concepts, examine issues facing information and knowledge society, and reflect on critical and creative thinking.

   a. Module Discussions (10% of total grade). These are graded discussions, and students are required to participate in the online discussions. The discussion posts must answer the discussion question thoughtfully and reflectively. In addition, it is essential to demonstrate original thoughts supported by specific examples, relevant experiences, and assigned/self-selected readings. The initial post should cite a minimum of one article from the reading list of a module. Additionally, students are expected to respond to at least one comment made by another student in class (100-150 words).

   Deadlines & Submissions: Each post must be completed before the specified deadline.

   b. Module Quizzes (30%): Students are required to complete online quizzes to examine their understanding of the readings and the critical concepts in a module. Detailed instructions will be shown on the Canvas site.

3. Assignments 1 to 3 (35% of total grade)
   Assignment #1: Index Techniques
      Points: 15% of assignment grade
      Description: Students will be asked to apply core information retrieval concepts, including positional indexes, index compression, and tolerant retrieval, through three structured questions that combine practical tasks and conceptual understanding.

   Assignment #2: Clustering and Information Retrieval
      Points: 10% of assignment grade
      Description: Students will be asked to explore PubMed's structured search capabilities by formulating advanced queries using Medical Subject Headings (MeSH), subheadings, and Boolean operators. This assignment will guide them in understanding how PubMed's controlled vocabulary and indexing methods search results differently from free-text systems like Google.

   Assignment #3: Web Crawling & Indexing
      Points: 10% of the assignment grade
      Description: Students will be asked to sharpen their online information searching and retrieval skills by working across multiple platforms—including general search engines, scholarly databases, and AI tools—to investigate both everyday and academic topics

4. Final Exam (25%)
   The final exam will be released online at the end of this semester. The final exam assesses students' understanding of the key concepts learned in this course. Detailed instructions will be shown on the Canvas site.

5. Extra Credit (3%)
   Extra credit assignments are marked on Canvas. Overdue extra credit assignments are not accepted.

Date	Topic	Assignment	Points Possible	Percentages
1/18	Introduction to the course	Extra Credit		1%
1/18	Boolean Retrieval	Discussion #1	5 points	
1/25	Term Vocabulary & Posting Lists	Quiz # 1	5 points	
2/1	Lexical Analysis & Query Processing	Quiz #2	5 points	
2/8	Index Techniques	Assignment # 1	20 points	
2/15	Ranking & Scoring Mechanisms	Quiz #3	5 points	
2/22	Evaluation & Feedback Mechanisms	Discussion #2	5 points	
3/1	Specialized Retrieval Models	Quiz #4	5 points	
3/8	Text Classification Techniques	Quiz #5	5 points	
3/8	Watercooler Discussion			1%
3/22	Support Machine Learning on Documents	Quiz #6	5 points	
3/29	Clustering and Information Retrieval	Assignment #2	10 points	
4/5	Dimensionality Reduction & Semantic Techniques	Quiz #7	5 points	
4/12	Web Information Retrieval	Quiz #8	5 points	
4/26	Web Crawling & Indexing	Assignment #3	10 points	
	SPOT Evaluation	Extra Credit		1%
	Final Exam Review			
5/6	Final Exam	Final Exam	30 points	
	Total		120 points	

Students will be notified by Eagle Alert if there is a campus closing that will impact a class and describe that the calendar is subject to change, according to Campus Closures Policy (https://policy.unt.edu/policy/15-006).

Communications

Course announcements and information will be sent via email and posted in the "Announcements" section. Students are expected to monitor this area regularly. Students are also expected to check their Canvas Message box and UNT email address regularly, as this is the main avenue of communication the Teaching Team will use to contact you individually.

If students have questions that might be of interest to other students, they are encouraged to post them in the "Assignment Discussion" thread under the "Discussions" tab. Someone else likely has the same question. If a student needs the instructor's immediate attention to a question, it can be emailed to the instructor at ting.wang@unt.edu.

Assessing Your Work

A numeric example of a grading scale might be:
A = 108-120
B = 96-107
C = 84-95
D = 72-83
F = 0-71

*Every student in my class can improve by doing their own work and trying their hardest with access to appropriate resources. Students who use other people's work, including **Generative AI** tools, without citations will be violating 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) (https://policy.unt.edu/policy/06-003). If you have questions about this or any UNT policy, please email me or set a Zoom session.*

Technical Requirements Assistance

The following information has been provided to assist you in preparation for the technological aspects of the course. The University Information Technology (UIT) Helpdesk offers helpful resources and addresses any issues that might arise with Canvas Learn. http://www.unt.edu/helpdesk/

- Be sure you are using a supported web browser.
- Commonly used 3rd party plug-ins you may need to install for this course:
- Acrobat Reader
- Real Player
- Windows Media Player

Additional help for using Canvas Learn:

- The UNT Helpdesk recommends using Java version 7 update 10.
- You will need word processing software such as Word 2010. Acceptable file formats include .txt, .rtf, .doc, and .docx.

Student Support

The University of North Texas provides student technical support using Canvas and support resources. The student help desk may be reached at:

- Website: http://www.unt.edu/helpdesk/
- Phone: 940-565-2324
- In Person: Sage Rm. 130

Regular hours are maintained to provide support to students. Please refer to the website for updated hours.

Course Policies

- Assignment Policy
- Please use the academic calendar included here as the official repository for due dates. Additional information on assignments can be found in the modules.
- Late Work
  - All students are expected to submit their module activities and other assignments by the due date. This prevents students from getting too far behind in the course and allows the instructor to assign grades consistently. Assignments are due by 11:59 PM (midnight) on the date due. If an extenuating circumstance, such as a medically diagnosed illness or family emergency, arises, request an extension before the due date professionally and effectively. Contact the instructor via Canvas email. Late submissions without prior approval will receive a maximum of 80% of the total possible grade.
- No resubmission is allowed.
- After the final exam is due, no submission is accepted.

- Incompletes
  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) is passing 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 the Office of the Registrar for more information on incompletes. It is your responsibility to contact the instructor to request an incomplete and discuss the requirements for completing the course. You will receive an F grade if you do not remove the incomplete within one calendar year.
- Withdrawal: See the UNT Graduate Catalog for policies and the UNT semester schedule for deadlines. A grade of withdraw (W) or withdraw-failing (WF) will be given depending on your participation and grades. You may receive an F grade if you simply disappear and do not file a formal UNT withdrawal form.
- Copyright Notice
  Some or all of the materials on this course website 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 is available through the University Libraries Copyright Advisory Services.
- Syllabus Change Policy
  The information in this document is intended for students taking INFO 4206. The instructor will use this syllabus to guide the course and notify the class if changes occur.
- 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 any unexpected server outage or any unusual technical difficulty that 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 at 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.

How to Succeed in this Course

The University of North Texas makes reasonable academic accommodations for students with disabilities. Students seeking reasonable accommodation must 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 for 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. Students must obtain a new letter of reasonable accommodation for every semester and meet with each faculty member before implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access website (https://studentaffairs.unt.edu/office-disability-access). You may also contact ODA at (940) 565-4323.

UNT strives to offer you a high-quality education and a supportive environment, so you learn and grow. As a faculty member, I am committed to helping you be successful as a student. To learn more about campus resources and how to succeed at UNT, go to unt.edu/success and explore unt.edu/wellness. To get all your enrollment and student financial-related questions answered, go to scrappysays.unt.edu.

Supporting Your Success and Creating an Inclusive Learning Environment

I value the many perspectives students bring to our campus. Please work with me to create a classroom culture of open communication, mutual respect, and belonging. All discussions should be respectful and civil. Although disagreements and debates are encouraged, personal attacks are unacceptable. Together, we can ensure a safe and welcoming classroom for all. Please let me know if you ever feel like this is not the case. We are all learning together. I encourage you to review UNT's student code of conduct so that we can all start with the same baseline civility understanding (Code of Student Conduct) (https://policy.unt.edu/policy/07-012).

Attendance and Participation

I greatly respect students balancing the demands of their coursework with the responsibilities of caring for family members. If you run into challenges that require you to miss a deadline for the assignments, please contact me. There may be some flexibility I can offer to support your academic success.

UNT Policies

- ADA Policy
  If you have a disability and require accommodation under the terms of the federal Americans with Disabilities Act (ADA), you must present a written accommodation request to the instructor by the end of the third week of the semester. You should submit a request even if it is possible that accommodation may not be necessary later in the semester. You should register with the UNT Office of Disability Access or 940-565-4323, which provides many kinds of support services. Procedures are explained in the UNT Disability Access Policy for Students and Academic Units.

- Academic Integrity
  1. The UNT Students Standards of Academic Integrity (2009) are available at the University Policy Office.
  2. The Student Standards of Academic Integrity UNT Policy Manual (PDF)
     defines six categories of academic dishonesty: cheating, plagiarism, forgery, fabrication, facilitating academic dishonesty, and sabotage.
  3. The category plagiarism defined as follows: "Use of another's thoughts or words without proper attribution in any academic exercise, regardless of the student's intent, including but not limited to:
     a. Academic Dishonesty
        i. is the knowing or negligent use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgement or citation.
        ii. Is the knowing or negligent unacknowledged use of materials prepared by another person or by an agency engaged in selling term papers or other academic materials.

Enrollment in any INFO course is considered implicit acceptance of all DIS and UNT student policies.

It is the responsibility of the student to understand and adhere to these policies. DIS has zero tolerance for academic dishonesty. DIS instructors may choose to submit any student work to Turnitin for verification of originality. Penalties for plagiarism in INFO 5000 are as follows:

First offense: Students caught cheating or plagiarizing will be given a warning for this incident. Penalty on grades will be applied to this assignment.

Second offense: Final course grade reduced to F (Fail). Also, the incident will be reported to the Dean of Students, who may impose further penalty.

- Add/Drop Policy
  Please refer to the UNT Registrar's Office website regarding the Add/Drop Policy.

- Code of Conduct
  Please refer to the UNT Dean of Students Office website regarding the Student Code of Conduct Policy.