

**University of North Carolina at Charlotte**  
**College of Computing and Informatics**  
**Department of Software and Information Systems**

**Course Number and Title:** ITIS/DSBA/HCIP 6162: Data Mining, Fall 2024

**Credits:** 3 Graduate Credits

**Time, Days, and Location:**

1 pm-3:45 pm on Tuesdays at the Dubois Center 1101

**Faculty Information:** Xi (Sunshine) Niu, Ph.D., Associate Professor

Office: Woodward 310G

Email: xniu2@charlotte.edu

**Teaching Assistant:** Ms. Kajari Bhaumik

Email: kbhaumik@charlotte.edu

Office hours: Two times a week

- 11am – 12:30pm Fridays

- 11am – 12:30pm Mondays

Zoom: <https://charlotte-edu.zoom.us/j/93941925712>

**Course Description:**

This course is about data mining. It is an essential part of AI, which is one of the hottest topics in computer science today. Data mining is a fast-evolving field, especially for recent five years.

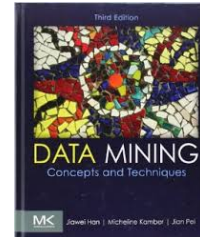
The availability of large amounts of data has created unprecedented opportunities to leverage computational and statistical approaches to turn data into actionable knowledge. This course covers general techniques for analyzing large amounts of **numerical** and **text** data. The entire data mining process is covered in this course: setting up a problem, data preprocessing, model constructions, model evaluations, and interpretations in decision making.

This course covers both classical data mining approach (e.g., Apriori, Random Forest, etc) as well as the recent deep learning models (e.g., RNN, CNN, BERT). In addition, the recent rise of large language models (LLMs), especially ChatGPT, has brought global excitement. We will have LLMs as one of our topics.

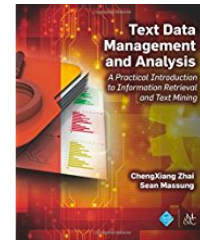
## Required Textbooks and Papers:

We will use **textbooks**, **online learning materials**, and **academic papers** as our learning materials. For all the papers, Dr. Niu will provide the full-text versions. For textbooks, Dr. Niu will provide the electronic copies. The two textbooks are listed as below:

Title: Data Mining: Concepts and Techniques  
Author(s): Jiawei Han, Micheline Kamber, and Jian Pei  
Edition: 3rd Edition  
Publisher: Morgan Kaufmann  
Year: 2011



Title: Text Data Management and Analytics: A Practical Introduction to Information Retrieval and Text Mining  
Author(s): ChengXiang Zhai and Sean Massung  
Publisher: ACM and Morgan & Claypool Publishers  
Year: 2016



## Evaluation Methods:

**Course grading will be based on these activities.**

Activities	Point
In-Class Quizzes	3 points x 13 = 39 points
After-Class Homework	4 points x 14 = 56 points
Class attendance	5 points
<b>Total</b>	<b>100 points</b>

## Grade Scale:

A = 90 points – 100points

B = 80 points – 89 points

C = 70 points – 79 points

U = Below 70 points

## Weekly Lesson Schedule:

Date	Contents
Aug 27	Syllabus Lesson 1: Getting to Know Your Data
Sept 3	Lesson 2: Principal Component Analysis
Sept 10	Lesson 3: Pattern Mining
Sept 17	Lesson 4: Machine Learning 1
Sept 24	Lesson 5: Machine Learning 2
Oct 1	Lesson 6: Cluster Analysis
Oct 8	Lesson 7: Word Association Mining
Oct 15	Student Fall Recess – No Classes
Oct 22	Lesson 8: Topic Modeling
Oct 29	Lesson 9: Introduction to Deep Learning
Nov 5	Lesson 10: RNN and CNN
Nov 12	Lesson 11: Word Embedding
Nov 19	Lesson 12: Transformers and BERT
Nov 26	Lesson 13: Large Language Models 1
Dec 3	Lesson 14: Large Language Models 2

## Course Policies:

### **Course Credit Workload:**

This 3-credit course requires 9-12 hours effort (including the class time) for this course each week for 14 weeks. Efforts may include but is not limited to: required reading, homework assignments, and studying for quizzes.

### **Class Attendance Policy:**

Attending every class is mandatory. Class attendance entails being prepared, present, and attentive for the entire class period. One or two absences (excused or unexcused) is OK without losing the class attendance points (5 points), but you will lose the in-class quiz points for those absence(s). Three or four absences will lose all your class attendance points (5 points). Five or more absences in total will result in U in the course. For each absence, the student is responsible for catching up with all covered materials and assignments.

### **Late Submissions:**

For assignments, unexcused late submission (according to the Canvas timestamp and the “late” flag) will receive a grade of 0. You should plan sufficiently for completing and submitting assignments. Should an emergency arise that greatly disrupts one’s ability to complete an assignment, please send an email to Dr. Niu **before** the due

date with a plan for submission after the due date. You need to receive Dr. Niu's permission for late submission.

### **Special Needs and Religious Accommodation:**

If you have a documented disability and require accommodation in this course, contact the Office of Disability Services (<https://ds.uncc.edu/students/academic>) the first week of the semester. Accommodations for learning will be arranged by that office and communicated to Dr. Niu.

It is the obligation of students to provide faculty with reasonable notice of the dates of religious observances on which they will be absent by submitting a Request for Religious Accommodation Form to their instructor prior to the census date for enrollment for a given semester. The census date for each semester (typically the tenth day of instruction) can be found in UNC Charlotte's Academic Calendar (<https://registrar.uncc.edu/printable-calendar>).

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### **University Policies:**

**Code of Student Responsibility:** <https://legal.uncc.edu/policies/up-406>

**Code of Student Academic Integrity:** <https://legal.uncc.edu/policies/up-407>

**Diversity and Inclusion:** <https://diversity.uncc.edu/>

**Sexual Misconduct and Interpersonal Violence:**

<https://legal.uncc.edu/policies/up-502>

**Standard for Responsible Use:** <https://oneit.uncc.edu/iso/standard-responsible-use>