

Course Syllabus for SIADS 685: Search and Recommender Systems

Course Overview and Prerequisites

The prerequisites for SIADS 685 include:

- Advisory Prerequisites: SIADS 642: Deep learning, SIADS 652: Network analysis, SIADS 655: Applied NLP, SIADS 611: Database Architecture and Technology
- Enforced Prerequisites: SIADS 694 (first half of Milestone II)

Instructor and Course Assistants

Instructor: Qiaozhu Mei, qmei@umich.edu

Course Assistant: Yumou Wei, qmei@umich.edu

Course Communication Expectations

Course-wide chat via Slack and Zoom.

Real-time development infrastructure via Jupyter Notebooks (Python)

Live Office Hours

How to Get Help

If you have questions concerning the degree program, encounter a technical issue with Coursera, or issues using Slack, please submit a report to the ticketing system at umsimadshelp@umich.edu.

If you have an issue specific to the Coursera environment, you can also begin a [live chat session](#) with Coursera Technical Support (24/7) or view [Coursera troubleshooting guides](#). (you may be asked to log in to your Coursera account).

For questions regarding course content, refer to the **Communications Expectations** section below.

Weekly Readings or Textbook Information

Week 1:

Reading: Q. Mei and D. Radev, "[Information Retrieval](#)", Chapter in The Oxford Handbook of Computational Linguistics 2nd edition

Reading: (Optional) C.Zhai and S.Massung, "[Text Data Management and Analysis - A Practical Introduction to Information Retrieval and Text Mining](#)", Chapter 5, 6, 7, 9 (parts)

Week 2:

[Text Data Management and Analysis - A Practical Introduction to Information Retrieval and Text Mining](#)

Week 3:

[Text Data Management and Analysis - A Practical Introduction to Information Retrieval and Text Mining](#)

Week 4:

[Text Data Management and Analysis - A Practical Introduction to Information Retrieval and Text Mining](#)

To access the required textbooks, simply click on the links above and login with your UMich LoginID and Password.

Learning Outcomes

1. Know the difference between search, adaptive filtering, and collaborative filtering.

2. Know the concept and rationale behind ranking (compared with classification), and be able to evaluate a ranking algorithm using appropriate metrics
3. Understand the basic architecture of a search engine, be able to build an inverted index of a large text collection and retrieve documents using a vector space model
4. Be able to build an adaptive filtering system using a classifier or a ranker on a data stream
5. Be able to construct a collaborative filtering algorithm using memory-based approach
6. Know how matrix factorization techniques are applied to search and recommendation
7. Be able to name popular applications of information retrieval and filtering in industry and articulate their specific challenges
8. Know advanced machine learning models can be used to improve the accuracy of search and recommender systems

Course Schedule

- **This course begins on May 4, 2021, and ends on May 31, 2021 (last assignments due on June 1 -- see Grading schedule below)**
- Weekly assignments will be **due on Tuesdays at 11:59 pm** (Ann Arbor, Michigan time-Eastern Daylight Time - EDT, UTC - 4).

Weekly Office Hours via Zoom (Ann Arbor, Michigan time):

Your instructor will hold weekly, synchronous office hours using the video-conferencing tool, Zoom. The schedule of office hours can be found by clicking on the **Live Events** link in the left-hand navigation menu.

Grading

Course Item	Number of Points	Percentage of Final Grade	Due
Week 1 Notebook Assignment	100	25%	Tuesday, May 18 - 11:59 pm Eastern
Week 2 Notebook Assignment	100	25%	Tuesday, May 18 - 11:59 pm - Eastern
Week 3 Notebook Assignment	100	25%	Tuesday, June 1 - 11:59 pm Eastern
Week 4 Notebook Assignment	100	25%	Tuesday, June 1 - 11:59 pm Eastern
Total	400	100%	

Note: All assignments are required to earn credit for this course.

Letter Grades, Course Grades, and Late Submission Policy

Refer to the [MADS Assignment Submission and Grading Policies](#) section of the UMSI Student Handbook (access to Student Orientation course required).

For this course, the late submission policy is 15% reduction if assignment is turned in one day late, 30% reduction if two days late, 45% if reduction three days, and a zero (0) if four or more days late.

The grading scale for this course is as follows:

A+	97%
A	93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%
C	
C-	70%
D+	67%
D	63%
D-	60%
F	0%

Academic Integrity/Code of Conduct

Refer to the [Academic and Professional Integrity](#) section of the UMSI Student Handbook. (access to Student Orientation course required).

Accommodations

Refer to the [Accommodations for Students with Disabilities](#) section of the UMSI Student Handbook (access to the Student Orientation course required). Use the [Student Intake Form](#) to begin the process of working with the University's Office of Services for Students with Disabilities.

Accessibility

Refer to the [Screen reader configuration for Jupyter Notebook Content](#) document to learn accessibility tips for Jupyter Notebooks.

Library Access

Refer to the [U-M Library's information sheet](#) on accessing library resources from off-campus. For more information regarding library support services, please refer to the [U-M Library Resources](#) section of the UMSI Student Handbook (access to the Student Orientation course required).

Student Mental Health

Refer to the University's [Resources for Stress and Mental Health website](#) for a listing of resources for students.

Student Services

Refer to the [Introduction to UMSI Student Life](#) section of the UMSI Student Handbook (access to the Student Orientation course required).

Technology Tips

- Recommended Technology
 - This program requires Jupyter Notebook for completion of problem sets and Adobe or other PDF viewer for reading articles.
- Working Offline
 - While the Coursera platform has an integrated Jupyter Notebook system, you can work offline on your own computer by installing Python 3.5+ and the Jupyter software packages, including pyspark. For more details, consult the Jupyter Notebook FAQ.