

Spring 2020

CS 634-852: Data mining

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Recommended Citation

Abdallah, Yasser, "CS 634-852: Data mining" (2020). *Computer Science Syllabi*. 86.
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Syllabus

Faculty Contact Information

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Course Description

This course covers the principles of data mining system design, development and implementation. It presents fundamental algorithms for association analysis, classification, regression, prediction and clustering. Other topics include graph, time series, text and web mining, as well as advanced data mining techniques.

Textbooks and Materials

Textbooks (Optional):

- Han, J., Kamber, M., Pei, J. (2011) Data Mining: Concepts and Techniques, 3rd Edition. Waltham, MA: Morgan Kaufmann, Elsevier. ISBN: 9780123814791
- Tan, P.N., Steinbach, M., Kumar, V., (2005) Introduction to Data Mining, 1st Edition. Addison-Wesley, Pearson. ISBN: 0-321-32136-7

Other Editions of Textbooks (Optional):

- Han, J., Kamber, M., Pei, J. (2005) Data Mining: Concepts and Techniques, 2nd Edition. Waltham, MA: Morgan Kaufmann, Elsevier. ISBN: 9781558609013
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Course Outcomes

1. Understand data mining concepts, principles and applications;
2. Use association rule mining algorithms to find associations among items in transactional databases;

3. Use classification algorithms to categorize records or make predictions, and evaluate the performance of these algorithms;
 4. Use clustering algorithms to group data points in high dimensional space, and evaluate the performance of these algorithms;
 5. Demonstrate the knowledge of building keyword-based and query-based web search systems, data warehouses, mediators, as well as graph, time series, text and web mining systems.
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Grading Scale

Grade	Percentile	Percentage
A	4.0	93% and above
B+	3.5	86%-92.9%
B	3.0	78%-85.9%
C+	2.5	70%-77.9%
C	2.0	60%-69.9%
F	N/A	Below 60%

Grading Categories

Categories	Percentage
Mid Term Project	30%
Final Term Project	35%
Final Exam	35%

Course Structure

Module	Dates
Module 1	1/21 - 1/27

Module 2	1/21 - 1/27
Module 3	1/28 - 2/3
Module 4	1/28 - 2/3
Module 5	2/4 - 2/10
Module 6	2/4 - 2/10
Module 7	2/11 - 2/17
Module 8	2/11 - 2/17
Module 9	2/18 - 2/24
Module 10	2/18 - 2/24
Module 11	2/24 - 3/2
Module 12	2/24 - 3/2
Module 13	3/3 - 3/9
Module 14	3/10 - 3/16
Module 15	3/10 - 3/16
Module 16	3/17 - 3/23
Module 17	3/24 - 3/30
Module 18	3/31 - 4/6
Module 19	3/31 - 4/6
Module 20	4/7 - 4/13
Module 21	4/14 - 4/20
Module 22	4/21 - 4/27

Course Policies

When submitting projects, make sure to include source code of programs, complete documentation with screenshots.

Late Work and Make-Up Exams

No late work will be accepted.

Sharing Information

Students are free to discuss assignments with their peers. However, they should not take any written (electronic or otherwise) record away from the discussion. All submissions should be your own original work.

Student Conduct

The NJIT University code on academic integrity will be followed in all courses.

Student with Disabilities Codes

NJIT adheres to section 504 of the Rehabilitation Act (ADA) of 1990. Appropriate accommodations are provided at no cost to the student. If you have any questions or would like additional information, please contact Dr. Phyllis Bolling, Center for Counseling and Psychological Services (C-CAPS), Campbell Hall, (entry level), room 205, (973) 596-3420.

Technical Support

For assistance with the following items, please contact NJIT IST Helpdesk at: 1-973-596-2900 or <http://ist.njit.edu/support/helpdesk.php> (Links to an external site.)

- UCID
- Library database access
- Webmail by Google email system
- Sessions
- Password assistance*

*NJIT passwords may be changed using the [Global Password Change mechanism \(Links to an external site.\)](#). You will need to know your current UCID and UCID password. Questions can be referred to 1-973-596-2900.

Periodic changing of passwords and strategies for managing them are best practice for anyone using a computer. All members of the university community are encouraged to review [tips for password management \(Links to an external site.\)](#) and to change passwords regularly.

Software Requirements

Sometimes, you will be required to use Word processing and presentation software, such as MS Word and PowerPoint found in Microsoft Office. You will also need to be comfortable with various aspects of using the Internet such as:

- Search engines
- Newsgroups
- E-mail
- Ability to download files

To view certain media elements in this course, you will need to have several browser plug-ins such as Shockwave, Flash, and Adobe Acrobat on your computer.

Schedule and Deadlines

The schedule and dead lines for the ***modules*** are ending on April 27th, a week before the last day of classes. This allows you to have all the materials you need for review and study.

Module 1	Due Date	Points
Data Mining: Concepts and Techniques, Chapters 1, 2, and 3	1/21	~
Introduction to Data Mining, Chapters 1 and 2	1/21	~
Icebreaker Discussion	1/21	~
Module 2		
Data Mining: Concepts and Techniques, Chapter 6	1/21	~
Introduction to Data Mining, Chapter 6	1/21	~
Module 3		
Data Mining: Concepts and Techniques, Chapters 8 and 9	2/3	~
Introduction to Data Mining, Chapters 4 and 5	2/3	~

Module 4		
Data Mining: Concepts and Techniques, Chapters 8 and 9	2/3	~
Introduction to Data Mining, Chapters 4 and 5	2/3	~
Module 5		
Data Mining: Concepts and Techniques, Chapter 8	2/10	~
Introduction to Data Mining, Chapter 5.3	2/10	~
Module 6		
Data Mining: Concepts and Techniques, Chapter 8.6	2/10	~
Introduction to Data Mining, Chapter 5.6	2/10	~
Module 7		
Data Mining: Concepts and Techniques, Chapter 3.4.5	2/17	~
Introduction to Data Mining, Appendix D	2/17	~
Module 8		
Data Mining: Concepts and Techniques, Chapter 8.5	2/17	~
Introduction to Data Mining, Chapter 5.7	2/17	~
Module 9		
Data Mining: Concepts and Techniques, Chapters 10, 11, and 12	2/24	~
Introduction to Data Mining, Chapters 8, 9, and 10	2/24	~
Module 10		
Data Mining: Concepts and Techniques, Chapters 10, 11, and 12	2/24	~
Introduction to Data Mining, Chapters 8, 9, and 10	2/24	~
Module 11		
Data Mining: Concepts and Techniques, Chapter 10.6	3/2	~
Introduction to Data Mining, Chapter 8.5	3/2	~
Module 12		
Data Mining: Concepts and Techniques, Chapter 11.3	3/2	~
Introduction to Data Mining, Chapter 9.4	3/2	~
Module 13		

Data Mining: Concepts and Techniques, Chapter 13	3/9	~
Module 14		
Data Mining: Concepts and Techniques, Chapter 1.6.2	3/16	~
Module 15		
Data Mining: Concepts and Techniques, Chapter 1.6.2	3/16	~
Module 16		
Data Mining: Concepts and Techniques, Chapter 4	3/23	~
Module 17		
Data Mining: Concepts and Techniques, Chapter 10.5	3/30	~
Introduction to Data Mining, Chapter 4.3.6	3/30	~
Module 18		
Data Mining: Concepts and Techniques, Chapter 10.5	4/6	~
Introduction to Data Mining, Chapter 4.3.6	4/6	~
Module 19		
Data Mining: Concepts and Techniques, Chapter 10.5	4/6	~
Introduction to Data Mining, Chapter 4.3.6	4/6	~
Module 20		
Data Mining: Concepts and Techniques, Chapter 13.1	4/13	~
Module 21		
Data Mining: Concepts and Techniques, Chapter 6.2.4	4/20	~
Introduction to Data Mining, Chapter 6.6	4/20	~
Module 22		
Data Mining: Concepts and Techniques, Chapter 8	4/27	~
Introduction to Data Mining, Chapter 4	4/27	~
Project & Exams		
Mid Term Project	*	100
Final Term Project	**	100

Final Exam [Covering Modules 01 through 22]	***	100
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Please see Syllabus for full explanation of grading weights.

* Due date is specified in the Midterm Document & Module

**Due date is specified in the Final Term Project Document & Module

***According to the university schedule.

NOTE: The release date and order of a module may change during the semester to help you do your projects, but I will notify you in such a case.

In addition, the due date may change to have the materials as early as possible to have enough time for your projects and study for final exam.