

CS4412A/9555 Fall 2012

Data Mining and It's Applications

Course Outline

Course Description

Data mining plays an increasing role in financial industry, retail industry, Internet services, and e- business. It integrates techniques from databases, machine learning, artificial intelligence, statistics, and visualization to discover implicit and useful knowledge from large datasets.

The course will provide a comprehensive introduction to data mining, various data mining techniques, and some successful applications. The emphasis is on modern approaches such as decision tree learning, Bayesian learning, clustering, and association learning. Real-world applications with data mining algorithms and tools will be emphasized.

Prerequisites

Computer Science 3319a/b and 3346a/b; Statistical Sciences 2222a/b or 2241a/b or Biology 2244a/b.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Instructor

Dr. Jun Du
Office hours: TBD
Email: jdu43@uwo.ca (best way to contact him)

Course Website

[Please check the Course Website regularly.](#)

Textbook:

There is *no* textbook required for the course; lecture notes will be posted on the course website.

Three following books are recommended for reference:

- Data Mining: Concepts and Techniques, 3rd Edition, by Jiawei Han, Micheline Kamber, Jian Pei. 2011.
- Data Mining: Practical Machine Learning Tools and Techniques, 3rd Edition, by Ian H. Witten, Eibe Frank, Mark A. Hall. 2011.
- Introduction to Data Mining, 1st Edition, by Pang-Ning Tan, Michael Steinbach, Vipin Kumar. 2005.

Additional materials might be added and used later in the semester.

TA and Office Hours

TBD

Student Evaluation

- Three assignments, each worth 10% of the final grade. The tentative due dates of the assignments are 10/9, 10/22, and 11/12.
- One in-class midterm exam, worth 40%. The tentative schedule of the midterm is on 10/30 (Oct 30). It is a two-hour written exam. The midterm is open book, but no electronic device is allowed.
- One final project, worth 30%. The tentative due date is 12/3.
- There is no final exam.

Late assignments cost 10% of the assignment per day late unless an extension has been granted. After a week has passed from the due-date no assignments will be accepted for marking. Extensions may be granted by the course instructor.

If for any reason the assignment, midterm, and project schedules cannot be adhered to, the marks will be pro-rated.

Every effort will be made to have assignments marked and handed back within 2 weeks of the hand-in date, preferably sooner. Midterm exam marks will be available within 3 weeks of the exam at the latest.

Academic Accommodation for Medical Illness

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed.

A student requiring academic accommodation due to illness should use the Student Medical Certificate when visiting an off-campus medical facility or request a Record's Release Form (located in the Dean's Office) for visits to Student Health Services.

If the accommodation is approved by your Dean's office and/or by the instructor, your final mark will be re-weighted accordingly.

Accessibility Statement

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

Email Contact

We will occasionally need to send email messages to the whole class, or to students individually. Email will be sent to the UWO email address assigned to students by Information Technology Services (ITS), i.e. your email address @uwo.ca. It is each student's responsibility to read this email on a frequent and regular basis, or to have it forwarded to an alternative email address if preferred. See the ITS website for directions on forwarding email. However, note that email at ITS (your UWO account) and other email providers such as hotmail.com or yahoo.com establish quotas or limits on the amount of space available to you. If you let your email accumulate there, your mailbox may fill up and you may lose important email from your instructors. Losing email is not an acceptable excuse for not knowing about the information that was sent.

Ethical Conduct

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf> Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence. All assignments are individual assignments. You may discuss approaches to problems among yourselves; however, the actual details of the work (assignment writing, answers to concept questions, etc.) must be an individual effort. The standard departmental penalty for assignments that are judged to be the result of academic dishonesty is, for the student's first offence, a mark of zero for the assignment, with an additional penalty equal to the weight of the assignment also being applied. You are responsible for reading and respecting the Computer Science Department's policy on Scholastic Offences and Rules of Ethical Conduct. The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.