



THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE DEPARTMENT

GACS-7401-002 – Current Topics in Computing (Advanced Machine Learning)

Instructor Information

Instructor: Dr. Sheela Ramanna

Office: 3D15

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Office Hours: Thursday 10:00-11:00

Class Meeting Time: T, Th 11:30- 12:45

Room No: 3D03

Course Web page: <http://www.acs.uwinnipeg.ca/7401-002>

Important Dates

- First Class: Sep. 5
- Final Withdrawal Date w/o academic penalty: Nov. 10 (A minimum of 20% of the work on which the final grade is based will be evaluated and available to the student before the voluntary withdrawal date)
- Reading Week Break: Oct. 8 -14 (No classes)
- Project Proposal Presentation: Oct. 17
- Quiz 1: Sep. 28
- Quiz 2: Oct. 26
- Quiz 3: Nov. 23
- Final Project Presentations: Dec. 19

Additional Course Related Information

1. When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform you via uwinnipeg email, as well as the departmental assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms.
2. Your uwinnipeg email address will normally be used for course related correspondence.
3. Please note that withdrawing before the VW date does not result in a fee refund.
4. Class make-up days are scheduled at the end of term for courses that conflict with holidays.

Course Objectives

This course discusses methods used in practical machine learning. Emphasis is placed on the foundations of well-known machine learning algorithms. Uncovering patterns in web content, structure and usage will also be discussed. Applications of these algorithms are also explored via the Weka machine learning workbench. Evaluating predictive quality of the algorithms and assessing credibility of learned patterns with statistical methods will be also covered.

Course Topics

- Tree-based Classifiers
- Association rules and Market-basket Analysis
- Bayesian Classifiers
- Rule-Based Classifiers
- Numeric prediction (linear regression, regression trees, model trees)
- Cluster Analysis
- Neural networks
- Web Mining Methods

Evaluation Criteria

Quizzes (3) -18 % each	54%
Project Proposal Report	4%
Final Project	37%
Final Project Presentation	5%

Final Letter Grade Assignment

Historically, numerical percentages have been converted to letter grades using the following scale. However, instructors can deviate from these values based on pedagogical nuances of a particular class, and final grades are subject to approval by the Department Review Committee.

A+	90+ - 100%	B	70 - 74%	F	below 50%
A	85 - 90%	C+	65 - 69%		
A-	80 - 84%	C	60 - 64%		
B+	75 - 79%	D	50 - 59%		

Course Project will involve:

- Preparing and presenting a project proposal (max. 5 pages) approved by the instructors
- Reading a few papers related to the proposal topic
- Implementing a solution (mandatory)
- Preparing a project report (max 20 pages)

The Final Project will be evaluated on the basis of i) working software ii) innovative solution iii) technical soundness and completeness iv) readability of the technical report v) presentation

NO LATE WORK will be accepted. Class work must be typed and submitted in an 8.5x11 folder with your name and course number on the outside.

Quizzes will test both factual knowledge and the ability to apply course material to real life situations and problems. Answers must be meaningful to achieve potential credit. English dictionary aids will be allowed as appropriate.

Please contact us as soon as possible if extenuating circumstances require you to miss a class, deadline, quizzes/tests/examination. Should illness prevent participation in a test or examination, a medical certificate from a certified physician must be supplied before any adjustments are considered.

Keep a copy of all class work (e.g., assignment, quiz) handed back in case there is an error in recording of marks by the instructor.

Exam/Test Requirements

- A Photo Id **IS NOT** required for taking a test or an exam.
- Cell phones are not permitted in the classroom.

Email Communication

Emails from accounts at uwinnipeg.ca are usually not filtered by the UofW email filter. Thereby it is recommended electronic communication used for the course utilize a UofW email account to minimize the risk of filtering.

Services for Students

Students with documented disabilities, temporary or chronic medical conditions, requiring academic accommodations for tests/exams (e.g., private space) or during lectures/laboratories (e.g., note-takers) are encouraged to contact Accessibility Services (AS) at 786-9771 or accessibilityservices@uwinnipeg.ca to discuss appropriate options. All information about a student's disability or medical condition remains confidential <http://www.uwinnipeg.ca/accessibility> .

Students may choose not to attend classes or write examinations on holy days of their religion, but they must notify their instructors at least two weeks in advance. Instructors will then provide opportunity for students to make up work examinations without penalty. A list of religious holidays can be found in the 2017-18 Undergraduate Academic Calendar.

All students, faculty and staff have the right to participate, learn, and work in an environment that is free of harassment and discrimination. The UW Respectful Working and Learning Environment Policy may be found online at www.uwinnipeg.ca/respect .

The university will be closed on October 9th (Thanksgiving), November 11th (Remembrance Day), Dec. 22-Jan. 2, 2018 (December break).

Required Text Book(s)/Reading List*

- WEKA Book (freely downloadable)
- Hal Daume, III A course in machine learning (freely downloadable)
- Z.Markov and D.T. Larose, Data Mining the Web, Wiley 2007 (notes will be provided)
- Course notes

Prerequisite Information (This information can be found in the UW Graduate calendar)

Consent of the Department Graduate Program Committee Chair or Instructor.

Misuse of Computer Facilities, Plagiarism, and Cheating

Academic dishonesty is a very serious offense and will be dealt with in accordance with the University's policies. Be sure that you have read and understood Regulations & Policies #8, in the 2017-2018 UW Undergraduate Academic Calendar available at

<http://uwinnipeg.ca/academics/calendar/docs/regulationsandpolicies.pdf>.

Additional information is available at University of Winnipeg library video tutorial "Avoiding Plagiarism" <https://www.youtube.com/watch?v=UvFdxRU9a8g>