



THE UNIVERSITY OF WINNIPEG

For more information visit www.uwinnipeg.ca or contact a student recruitment officer at welcome@uwinnipeg.ca or 204.786.9844. In any case where The University of Winnipeg Course Calendar and this fact sheet differ, the current Calendar takes precedence.

Master of Science Applied Computer Science and Society 2012 - 2013

The M.Sc in **Applied Computer Science and Society** focuses on issues of technology and ethical/human/social aspects of computing. We offer courses in three core clusters that represent frontiers of the discipline. These are: Information Representation, Search and Management, Intelligent Systems, and Systems Development.

AREAS OF RESEARCH

The research interests of our faculty include: algorithms and complexity, computational intelligence, computer vision, data warehousing, web and document databases, granular computing, image processing, pattern recognition, software engineering, rough sets, security and privacy, multimedia computing, and wireless communication. Information about specific research topics can be found on the faculty web pages.

We offer both thesis-based and course-based programs. Our thesis-based program is designed to provide an excellent basis for a Ph.D. in computer science or other related fields. Our graduates in the course-based program are well-qualified for employment in industry, the public-sector, and academia.

REQUIREMENTS FOR A M.Sc. IN APPLIED COMPUTER SCIENCE AND SOCIETY (Thesis-Based)

Program Requirements

Students are required to take

- a minimum of 12 credit hours from the list of Applied Computer Science courses and
- **ACS-7500 Graduate Thesis.**

Students are required to write a thesis and successfully defend their thesis in an open oral defense in the presence of a thesis committee. Students must select their courses in consultation with their thesis supervisor.

Department Admission Requirements

Students may be admitted to the thesis-based Master's program if they hold an Honours or 4-year Bachelor of Science degree in Applied Computer Science, Computer Science and/or Engineering, Mathematics or equivalent and if they present a suitable selection of courses. A student must have a supervisor selection prior to admission.

Minimum Entry Requirement:

Overall GPA of 3.0

English Requirement:

A minimum TOEFL score of 550 (paper-based), 213 (computer-based), (80) Internet-based
OR

International English Language Testing System **IELTS** (6.5) is needed.

The test should have been taken within a year of the date a completed application is filed.

Switching from Thesis-based Program to Course-based Program:

Students may switch from *thesis-based* to *course-based* program within the first four months from the date of registration. After the first four months, a switch can be made only with the written approval of their thesis Supervisor and the Graduate Program Committee Chair.

REQUIREMENTS FOR A M.Sc. IN APPLIED COMPUTER SCIENCE AND SOCIETY (Course-Based)

Program Requirements

Students are required to take

- a minimum of 21 credit hours of ACS-7xxx/3 courses (excluding ACS-7500 thesis course) and
- a minimum of 9 credit hours of ACS-4xxx/3 courses.

Department Admission Requirements

Students may be admitted to the course-based Master's program if they hold an Honours or 4-year Bachelor of Science degree in Applied Computer Science, Computer Science and/or Engineering, Mathematics or equivalent and if they present a suitable selection of courses.

Minimum Entry Requirement:

Overall GPA of 3.0 in all computing, mathematics and statistics courses.

English Requirement:

A minimum TOEFL score of 550 (paper-based), 213 (computer-based), (80) Internet-based

OR

International English Language Testing System **IELTS** (6.5) is needed.

The test should have been taken within a year of the date a completed application is filed.

Switching from Course-based Program to Thesis-based Program:

Students may switch from *course-based* to *thesis-based* program at any time during the program provided a thesis supervisor is willing to accept them. The department is not responsible for finding thesis supervisors.

SAMPLE COURSE DESCRIPTIONS

ACS-7102/3 WEB AND DOCUMENT DATABASES (Le3) In this course, students will gain a good understanding and knowledge of research issues associated with two types and databases. In particular, students will study basic theoretic issues of web and document databases: system architectures, data storage and data retrieval. Another specific methodology related to DNA databases will also be discussed.

ACS-7203/3 PATTERN RECOGNITION (Le3) This course gives students an overview of classification techniques. It covers methods from linear classifiers to nonparametric techniques. Feature generation, selection, and extraction techniques are examined. Both supervised and unsupervised learning methods are discussed.

ACS-7204/3 MULTIMEDIA COMPUTING AND APPLICATIONS (Le3) This course provides graduate students with an in-depth knowledge of various computational techniques and tools used in multimedia research (images, videos, speech, graphics and documents). The course covers the following topics: fundamentals of multimedia signal processing, multimedia compression, wireless multimedia, multimedia summarization, content-based multimedia retrieval, multimedia surveillance and security, and current issues and trends in multimedia research. The objective of this course is to prepare students to understand the theoretical foundation of multimedia computing, and to apply computational tools such as Matlab, Intel OpenCV, etc., to the processing and analysis of multimedia data.

ACS-7101/3 ADVANCED DATA STRUCTURES AND ALGORITHMS FOR APPLIED COMPUTER SCIENCE (Le3)

This course examines methods for designing efficient data structures and algorithms such as signature trees, suffix trees, compressed transitive closures, and the algorithms for tree inclusion, tree matching, linear-time suffix tree construction, as well as arc consistency problem. Other topics include problems in specialized databases such as Web and Document, DNA and Deductive Databases.

ACS-7500/3 GRADUATE THESIS (P) Graduate thesis research. Detailed exploration of an area of applied computer science chosen for thesis research.

PROGRAM NOTES (THESIS-BASED AND COURSE-BASED):

Second Language Requirement: None

Expected Time to Graduate: 2 years

Maximum Time Required to Graduate: 5 years

PRE-MASTERS:

Students can also be admitted to the Master's program upon successful completion of a University of Winnipeg designed pre-Master's program which consists of a set of upper-level undergraduate courses.

See department website for details <http://www.acs.uwinnipeg.ca>

APPLICATION DEADLINES

The Department allows students to begin their program in September or January. For admission for each of these start dates, Canadian/U.S. students should send their applications with complete supporting documentation to the Office of Graduate Studies no less than three (3) months before the intended start date. All other students should send their applications with complete supporting documentation no later than six months (6) before the intended start date.

HOW TO APPLY

1. Complete the on-line application form available <http://www.uwinnipeg.ca/index/cms-filesystem-action?file=pdfs/gradstudies/grad-studies-app.pdf>

2. Provide two official/notarized transcripts of academic work completed to date, sent directly from the issuing institution. If the final transcript does not show that a completed degree has been conferred, an official/notarized copy of your diploma is also required.

3. Supply two letters of recommendation from individuals most familiar with your academic work and relevant experience.

4. English requirement: for international students.

CONTACT US

Further inquiries should be directed to:

Chair of Graduate Studies Committee
Department of Applied Computer Science
Phone: 204.786.9416
Email: gradstudies@acs.uwinnipeg.ca

Completed application forms should be submitted to:

Admissions Office

Administrative Assistant – Graduate Studies
Room 3D07B
Phone: 204.786.9309

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