



THE UNIVERSITY OF WINNIPEG

APPLIED COMPUTER SCIENCE

Course Number: GACS-7401-001

Course Name: Advanced Concepts in Cloud Computing

Instructor Information

Professor: Talal Halabi

Office: 3D19

E-mail: t.halabi@uwinnipeg.ca

Office Hours: Tue: 1:00 – 3:00

Class Meeting Time: Mon & Wed: 10:00 – 11:15

Room No: TBD

Course Web Page: <https://sites.google.com/view/talalhalabi/teaching/gacs-7401-001>

Important Dates

First Class: September 4th, 2019

Submission of proposals: September 19th, 2019

Midterm Exam: October 23rd, 2019

Reading Week (No Classes): October 13th – Oct 19th, 2019

Final Withdrawal Date w/o academic penalty: November 12th, 2019

(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)

Submission of term papers: December 1st, 2019

Presentations: December 2nd, 2019

Last Class: December 3rd, 2019

Final Exam: December 12th, 2019

Final Exam Location: TBD

Course Objectives/Learning Outcomes

This course provides extensive coverage of some major subjects in Cloud Computing. It gives an overview of Cloud Computing and explains its main service delivery models, deployment architectures, and enabling technologies such as virtualization and parallel computing. Students will acquire considerable knowledge in Cloud data and resource management, architectural pattern design, security and privacy challenges and solutions, as well as commercial and open-source Cloud systems. They will gain research skills by taking on a research project on a subject

related to Cloud Computing. The course will also feature hosted presentations and talks by major Cloud industry leaders in Manitoba.

Evaluation Criteria

Midterm Exam: 15%

- Closed-book in-class midterm exam.

Final Exam: 25%

- Closed-book final exam.
- The final exam covers all material discussed in the course.

Research Project (60%)

- Students will be required to do a comprehensive research project. Topics will be related to Cloud Computing.
- The project will present an original idea. It could be theoretical or technical.
- Depending on the class size, students may be assigned into groups, and then the project will be done as a group project. In this case, there will be additional evaluation criteria on each individual student on their contribution to the overall project in the group.
- Proposals must be submitted on the due day no later than 11:59:59 pm. They must be submitted by email as PDF (Portable Document Format) files to my University of Winnipeg email account – t.halabi@uwinnipeg.ca
- Proposals could be up to two pages, including a brief introduction, a discussion of related work in the literature, a description of the research objective(s), and the prospective methodology. Proposals must be typed. No handwritten proposals will be accepted.
- Research projects will be evaluated based on originality, technical soundness, realization of declared objectives, outcomes or results, and the quality of the presentation. For group projects, individual contribution will be part of the evaluation (more details will be provided in class and on the course website).
- The final research paper will be formatted as a scientific publication of minimum five pages and maximum eight pages. More information about paper format will be given in class. Papers must be typed. No handwritten papers will be accepted.
- The final research paper must be submitted on the due day no later than 11:59:59 pm. It must be submitted by email as PDF (Portable Document Format) files to my University of Winnipeg email account – t.halabi@uwinnipeg.ca
- Students will be required to present their projects in class at the end of term.

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

Test/Exam Requirements

- Photo ID at exam is required.
- You are expected to write the test/exam on its given day.
- No electronic devices (e.g. cell/smart phone, laptop, scientific calculators, translators, etc.) are permitted.
- Midterm and final exams are closed-book.
- Simple calculators can be used though. Simple calculators are subjected to test and can be denied use at mid-term test and final examination times.
- Unless a medical certificate is provided, no accommodation is made for missed exams.

Prerequisite and Restriction Information*

(This information can be found in the UW General calendar)

- Consent of Department Graduate Studies Committee Chair

Email Communication Requirements

- 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.
- Use 'GACS-7401' as subject in email communication related to the course.

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 2019-20 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.

Misuse of Computer Facilities, Plagiarism, and Cheating

Avoiding Academic and Non-academic Misconduct. Students are encouraged to familiarize themselves with the Academic Regulations and Policies found in the University Academic Calendar at:

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

Particular attention should be given to subsections 8 (Student Discipline), 9 (Senate Appeals), and 10 (Grade Appeals). Please note, in particular, the subsection of Student Discipline pertaining to plagiarism and other forms of cheating. Detailed information can be found at the following:

Academic Misconduct Policy and Procedures:

<https://www.uwinnipeg.ca/institutionalanalysis/docs/policies/academic-misconduct-policy.pdf>

and

<https://www.uwinnipeg.ca/institutionalanalysis/docs/policies/academic-misconduct-procedures.pdf>

Non-Academic Misconduct Policy and Procedures:

<https://www.uwinnipeg.ca/institutionalanalysis/docs/student-non-academic-misconduct-policy.pdf>

and

<https://www.uwinnipeg.ca/institutionalanalysis/docs/student-non-academic-misconduct-procedures.pdf>

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

Misuse of Filesharing Sites. Uploading essays and other assignments to essay vendor or trader sites (filesharing sites that are known providers of essays for use by others who submit them to instructors as their own work) involves “aiding and abetting” plagiarism. Students who do this can be charged with Academic Misconduct.

Avoiding Copyright Violation. Course materials are owned by the instructor who developed them. Examples of such materials are course outlines, assignment descriptions, lecture notes, test questions, and presentation slides. Students who upload these materials to filesharing sites, or in any other way share these materials with others outside the class without prior permission of the instructor/presenter, are in violation of copyright law and University policy. Students must also seek prior permission of the instructor /presenter before photographing or recording slides, presentations, lectures, and notes on the board.

Required TextBook(s)/Reading List

No specific textbook is required. Relevant textbook chapters and sections will be given during lectures. Class notes, supplementary scientific papers, and notices will be posted on the course website. Students are responsible for all material covered in class and posted on the website. Students are also responsible for announcements made in class.

Course Outline (Tentative)

Week one - Overview of Cloud Computing

Week two - Service Delivery models/Service Oriented Architectures

Week three - System and Network Virtualization

Week four - Cloud Data Management: Storage and Analytics (MapReduce/Hadoop)

Week five - Cloud Resource Allocation and Management

Week six/seven - Cloud Architecture Patterns

Week eight - Mobile Computing and IoT

Week nine/ten - Cloud Security and Privacy

Week eleven - Research Trends in Cloud Computing

Note that all topics listed may not be covered and may be offered in a slightly different time order.

Additional Course Related Information

1. When it is necessary to cancel a class due to exceptional circumstances, instructors will make every effort to inform students via uwinnipeg email (and/or using the preferred form of communication, as designated in this outline), as well as the Departmental Assistant and Chair/Dean so that class cancellation forms can be posted outside classrooms
2. Students are reminded that they have a responsibility to regularly check their uwinnipeg e-mail addresses (and/or using the preferred form of communication, as designated in this outline) to ensure timely receipt of correspondence from the university and/or their course instructors
3. Please note that withdrawing before the VW date does not necessarily result in a fee refund (November 12 is VW date for classes that begin in September and end in December).
4. No make-up classes scheduled
5. No classes:
October 14th, 2019 Thanksgiving
October 13th-19th, 2019 Mid-term reading week
November 11th, 2019 Remembrance Day
December 22nd, 2019 - January 2nd, 2020 University closed