Department of Computer Science

176 Thorvaldson Building
110 Science Place, Saskatoon, SK, S7N 5C9, Canada
Telephine: (306) 966-4886, Facimile: (306) 966-4884

CMPT 435-01
Fall 2016-2017

University of Saskatchewan

Course Syllabus

CMPT 435: Foundations of Concurrent Programming

Catalogue Description

Theory and practice of concurrent programming. Process interaction using shared variables and message passing; parallel computing; development of correct programs; general problem solving techniques; scientific computing; distributed programming.

Prerequisite(s):	CMPT 215 and 6 credit units from: CMPT 332, CMPT 340, CMPT 360.
Class Time and Location:	Lecture: 1:30 pm - 2:20 pm MWF, 299 Murray; Tutorial: 2:30 pm - 3:50 pm 299 Murray
Website:	http://agents.usask.ca/cmpt435

Instructor Information

Instructor	Prof. Nadeem Jamali
Contact:	Email: jamali@cs.usask.ca,
	Phone: 306-966-2579
Office Hours:	Location: Thorvaldson 281.6,
	Hours: TBA

Course Objectives

- Provide an introduction to foundational concepts, paradigms, and language support for concurrent programming.

Student Evaluation

Grading Scheme

Assignments	45%
Midterm Exam	25%
Final Exam	30%
Total	100%

Criteria That Must Be Met To Pass

Schedule:

- Assignment 1 assigned 15/9 due 29/9

- Assignment 2 assigned 29/9 due 14/10

- Midterm Exam 19/10

- Assignment 3 assigned 20/10 due 3/11

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- Assignment 4 assigned 11/11 due 24/11

- Assignment 5 assigned 24/11 due 8/12

Midterm and final cumulative marks will be scaled.

Attendence Expectation

Students will be expected to know all information passed on during lectures and tutorials and through the webpage, Moodle and email. If they miss a lecture or tutorial, they are responsible for acquiring material covered in the session.

Final Exam Scheduling

The Registrar schedules all final examinations, including deferred and supplemental examinations. Students are advised not to make travel arrangements for the exam period until the official exam schedule has been posted.
Note: All students must be properly registered in order to attend lectures and receive credit for this course.

Textbook Information

Required Text

- Gregory Andrews, "Foundations of Multithreaded, Parallel, and Distributed Programming," Addison-Wesley, 2000

Recommended Texts

- Carlos A. Varela, "Programming Distributed Computing Systems: A Foundational Approach," MIT Press, 2013

Lecture Schedule

- Topics to be covered:

  - Overview
  - Distributed Programming

    * Message Passing
    * RPC and Rendezvous
    * Paradigms for process interaction
    * Implementations

  - Shared-Variable Programming

    * Processes and Synchronization
    * Locks and Barriers
    * Semaphores
    * Monitors
    * Implementations

  - Parallel Programming

    * Scientific Computing
    * Languages, Compilers, Libraries and Tools

Course Overview

- There will be about 5 tutorials in total at the scheduled time, but on dates to be decided later.

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Policies

Recording of Lectures

Video or audio recording of lectures is not allowed, except with explicit permission of the instructor.

Late Assignments

- Assignments must be turned in at the times and dates and locations they are due, unless you have received permission in advance for an extension.

Missed Assignments

Students should submit early versions of their programming solutions frequently to avoid the possibility of missing a deadline. Students will receive a zero for assignments missed without prior permission from the instructor. If there is a compelling reason why seeking prior permission is not possible, the student should contact the instructor at the earliest opportunity for consideration of alternative arrangements. The instructor will judge whether the reason is compelling.

Missed Examinations

1. 1. Students who miss an exam should contact the instructor as soon as possible. If it is known in advance that an exam will be missed, the instructor should be contacted before the exam.

2. 2. "A student who is absent from a final examination due to medical, compassionate, or other valid reasons, may apply to the College of Arts and Science Undergraduate Students Office for a deferred exam. Application must be made within three business days of the missed examination and be accompanied by supporting documents."

   (http://artsandscience.usask.ca/students/help/success.php)

Incomplete Course Work and Final Grades

"When a student has not completed the required course work, which includes any assignment or examination including the final examination, by the time of submission of the final grades, they may be granted an extension to permit completion of an assignment, or granted a deferred examination in the case of absence from a final examination.

Extensions past the final examination date for the completion of assignments must be approved by the Department Head, or Dean in non-departmentalized Colleges, and may exceed thirty days only in unusual circumstances. The student must apply to the instructor for such an extension and furnish satisfactory reasons for the deficiency. Deferred final examinations are granted as per College policy.

In the interim, the instructor will submit a computed percentile grade for the class which factors in the incomplete coursework as a zero, along with a grade comment of INF (Incomplete Failure) if a failing grade.

In the case where the student has a passing percentile grade but the instructor has indicated in the course outline that failure to complete the required coursework will result in failure in the course, a final grade of 49% will be submitted along with a grade comment of INF (Incomplete Failure).

If an extension is granted and the required assignment is submitted within the allotted time, or if a deferred examination is granted and written in the case of absence from the final examination, the instructor will submit a revised assigned final percentage grade. The grade change will replace the previous grade and any grade comment of INF (Incomplete Failure) will be removed.

A student can pass a course on the basis of work completed in the course provided that any incomplete course work has not been deemed mandatory by the instructor in the course outline and/or by College regulations for achieving a passing grade." (http://policies.usask.ca/policies/academic-affairs/academic-courses.php)

For policies governing examinations and grading, students are referred to the Assessment of Students section of the University policy "Academic courses: class delivery, examinations, and assessment of student learning" (http://policies.usask.ca/policies/academic-affairs/academic-courses.php)

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Academic Honesty

The University of Saskatchewan is committed to the highest standards of academic integrity and honesty. Students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students are particularly urged to familiarize themselves with the provisions of the Student Conduct & Appeals subsection of the University Secretary Website and avoid any behaviour that could potentially result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University.

All students should read and be familiar with the Regulations on Academic Student Misconduct,
http://www.usask.ca/university_secretary/honesty/StudentAcademicMisconduct.pdf,
as well as the Standard of Student Conduct in Non-Academic Matters and Procedures for Resolution of Complaints and Appeals,
http://www.usask.ca/university_secretary/honesty/StudentNon-AcademicMisconduct2012.pdf.

Academic honesty is also defined and described in the Department of Computer Science statement on Academic Honesty:
http://www.cs.usask.ca/students/academic-honesty/index.php.

For more information on what academic integrity means for students see the Student Conduct & Appeals subsection of the University Secretary Website at:
http://www.usask.ca/university_secretary/pdf/dishonesty_info_sheet.pdf

Examinations with Disability Services for Students (DSS)

Students who have disabilities (learning, medical, physical, or mental health) are strongly encouraged to register with Disability Services for Students (DSS) if they have not already done so. Students who suspect they may have disabilities should contact DSS for advice and referrals. In order to access DSS programs and supports, students must follow DSS policy and procedures. For more information, check http://www.students.usask.ca/disability/, or contact DSS at 966-7273 or dss@usask.ca.

Students registered with DSS may request alternative arrangements for mid-term and final examinations. Students must arrange such accommodations through DSS by the stated deadlines. Instructors shall provide the examinations for students who are being accommodated by the deadlines established by DSS.

Student Supports

Student Learning Services (SLS) offers assistance to U of S undergrad and graduate students. For information on specific services, please see the SLS web site https://www.usask.ca/ulc/.

The Student and Enrolment Services Division (SESD) focuses on providing developmental and support services and programs to students and the university community. For more information, see the SESD web site http://www.usask.ca/sesd/.