

COURSE SYLLABUS

CMPT 400: RESEARCH TOPICS IN COMPUTER SCIENCE

Catalogue Description

Senior students will be introduced to research in an advanced area of computer science under the supervision of a faculty member specializing in the area.

Prerequisite(s): In the final year of an Honours Program; or a cumulative percentage average of at least 70% in 24 credit units in computer science and written permission of the department.

Permission to Enroll: Since CMPT 400 provides access to a variety of different and independent topics, registering for them involves more than just completing traditional course enrollment procedures. A special registration form has been provided to facilitate this. Students should complete this form as soon as possible. Once permission has been granted, students can register for the course via PAWS. Additionally:

- Course is designed for students in their “fourth year”
- Course requires a faculty supervisor in the area of the student’s project work. Efforts will be made to match students with their choice of projects or specific supervisor; however, this cannot be guaranteed. These matches are open to negotiation between individual students and faculty members;
- The *independent* nature of these courses may pose new challenges in personal time management to many students. Students are not permitted to register in both 400 and 405.

Class Time and Location:

- Term 1: Wednesdays and Fridays, 3:30 - 4:50 p.m. Within the scheduled days/times for CMPT 400, students will meet (as required) either by themselves as a group in their own classroom (Thorv S386) or attend presentations in other rooms to be announced; the purpose of these sessions is to assist students in understanding something about computer science research and research methodologies, as well as writing scientific reports in the appropriate form and making presentations.
- Term 2: CMPT 400 has no scheduled sessions for Term 2 apart from final presentations; however, students must set up regular consultation sessions with their supervisor throughout this term. This will factor into the final mark given by the supervisor
- It is students’ responsibility to monitor class pages for announcements; also e-mail notifications may be used so it is important for you to inform coordinator of any e-mail address changes.
- Presentations by CMPT 400 students are given in late-March/early April at a day/time suitable for everyone.

Website: Moodle

Coordinator Information

Coordinator Prof. Nadeem Jamali

Contact: Email: jamali@cs.usask.ca

Course Objectives

- The objectives of the course include providing each student with an in-depth understanding of a selected area of computer science:
 - beyond that available from other undergraduate courses
 - at or near the state of the art
 - under the guidance of an active researcher in the area
- The course is not designed to replace any existing CMPT courses. Rather it is designed for either a more concentrated study in some area or for study of some area not covered by an existing CMPT course.
- Students are encouraged to propose their own projects or at least to consider what type of project they want to undertake. Faculty can be called upon to provide suggestions and may have a set of potential project topics available for students to consider.
- Students may wish to consider the following in selecting a project:
 - their personal interest in a topic
 - the resources (including supervisor and clients) available to help with the project
 - the value that completing the project may add to the student potential job skills.
 - the potential workload required to complete the project.

Specific project topics will be approved by the supervisor in consultation with the course coordinator to ensure that they contain appropriate academic content commensurate with a 4xx level course.

Learning Objectives

The starting point in developing the learning contract for CMPT 400 is to identify a number of learning objectives, typically at least four. These learning objectives will specify what you plan to accomplish as part of the course. Academically, they provide evidence of suitable fourth year level academic work.

Learning objectives should be as concrete or objective as possible in the accomplishments they specify. The learning objectives for the course should reflect the "research" orientation of CMPT 400.

Each CMPT 400 project normally involves:

- Identifying project objectives, their importance, and how they relate to current research or practice in the field in question.
- Elaborating on the objectives by exploring relevant research literature
- Presenting a unique view of the topic via synthesis or further exploration
- Presenting conclusions, including an analysis of accomplishments and future directions

Typical learning objectives suitable for CMPT 400 might make use of the following wordings:

- identify and compare ...
- determine which ... are more efficient in terms of ...
- develop changes or additions to improve ...
- evaluate alternate methods to ...

- synthesize various recommendations on the design of ...
- design and conduct an experiment on ...
- evaluate the results of an experiment on ...
- develop recommendations for ...
- develop a new technique for ...
- apply ... technique(s) to ...

Students in CMPT 400 are expected to go beyond summarizing instances of existing information in their project paper. Students are expected to demonstrate their understanding of the material by techniques such as: comparing, contrasting, synthesizing, hypothesizing, and evaluating. Additionally students may wish to utilize experiments to test their ideas or to gain knowledge in areas lacking in or beyond published information.

Student Evaluation

Grading Scheme

| | |
|--|------|
| 2 Seminar Reviews | 6% |
| Ideas Presentation | 4% |
| Project presentation | 10% |
| Attendance (Faculty Presentations) | 5% |
| Attendance (Project Presentations) | 3% |
| Attendance (October 6th CSGCC Research Fest) | 2% |
| Major Project Paper | 70% |
| Total | 100% |

Criteria That Must Be Met To Pass

Students should receive a cumulative passing mark to pass the class.

Tentative milestones:

- Week of Sept. 26, 2016: Final agreement of faculty member to supervise a student; inform coordinator by email (with cc to supervisor).
- Week of Oct. 31, 2016: Completed and signed learning contract given to coordinator.
- Week of Nov. 14, 2016: Brief presentation to the group of the idea you have for the project.
- Week of Dec. 5, 2016: Project proposal due to supervisor, copied to coordinator.
- Week of Mar. 13, 2017: Abstract for final presentation submitted to coordinator.
- Late-March/early April, 2017: Final presentation of project (schedule created by end of February); abstracts due last week of February.
- April 6, 2017 Deadline: Final written report submitted to supervisor (with copy to coordinator) for marking. Last date for submitting two department seminar reviews to coordinator. Reviews must be signed by supervisor to indicate approval.

Attendance Expectation

Attendance is mandatory at all scheduled sessions and for all final presentations; attendance will be taken for specific sessions and will be factored into the final mark. For time conflicts, students should contact the coordinator.

Final Exam Scheduling

Not applicable

Note: All students must be properly registered in order to attend lectures and receive credit for this course.

Textbook Information

Required Text

- None

Recommended Texts

- None

Schedule of Meetings

Tentative Schedule:

| Week of | Topic |
|--------------------|--|
| Sept 5 | No meeting |
| Sept 12 | Wednesday: Orientation; Friday: Faculty Research Presentations |
| Sept 19 | Wednesday, Friday: Faculty Research Presentations |
| Sept 26 and beyond | Wait to be notified about presentations |
| Oct 3 | October 6: CSGCC Research Fest |
| Nov 14 | Wednesday, Friday: Ideas Presentations |
| Late April | Project Presentations |

Course Overview

The course goes through three important phases:

1. An introduction to Computer Science Research and Development
2. The individual directed project work under the guidance of a faculty advisor (weekly meetings with faculty advisor);
3. The presentation of the research results to an audience consisting of all students in CMPT 400 and CMPT 405 and their supervisors, and the production of a report or paper summarizing the work (at the end of the course).

CMPT 400 has the additional requirement that students must attend and critically review two presentations in the Computer Science Seminar Series.

Learning Contract

A learning contract must be prepared by the student in consultation with the supervisor, and signed by both parties. A copy should be given to the course coordinator prior to the end of September. It is suggested that the learning contract will identify:

- The objectives of the project;
- The resources needed for the project and how they will be obtained;
- The phases of the project, represented by at least two milestones of identified accomplishments;
- The final artifacts of the project;
- The proportion of the project mark allotted to each artifact.

The exact form of the contract depends on the project.

Department Seminars

All students in CMPT 400 must review two Department Seminars of their choice during the year. Seminars are usually held on Mondays or Fridays at 3:30 p.m. (not every week and not always at this time). Notices of upcoming seminars are available on the Department Website and are also posted in and around the Computer Science Department General Office (176 Thorvaldson Building).

You should try to do your seminar review shortly after you have attended the seminar. A draft copy of your review should be approved by your supervisor; a good copy is then given to the coordinator, Dr. Jamali. The coordinator will be keeping track of these reviews and assign final grades to them; the reviews will be graded on an acceptable/not acceptable basis. It is a good idea not to leave the choice of seminars until late in the course, since there is no guarantee how many seminars there will be in any given time period.

You may use the Research Seminar Evaluation Form or follow the following format:

Each review should be approximately 1 page long and must be printed on 8.5" by 11" paper. Identify the following at the top:

- Student Name
- Speaker Name
- Title
- Date and Time

The content of the review should be divided into two paragraphs. In the first paragraph you should describe in your own words what the seminar was about as you understood it. What was the speaker trying to accomplish? (NOTE: do not repeat the description on the seminar notice!)

In the second paragraph you should evaluate the seminar from your own viewpoint. How well was it delivered? How good were the overheads or displays? What did you learn from it? Be honest! If you learned little from it, explain why.

Hard copy or electronic format will be accepted. If handing in electronically, PDF is the only acceptable format.

Project Presentation/Report

You will give a very brief presentation in mid-November of the idea you have decided to pursue on your project. A Schedule for your final project presentation will be released around the end of February; the actual presentation period is toward the end of March/early April. You will be required to submit a title for your presentation at the time the schedule is developed.

The deadline for submission of your final written reports to your supervisor (not the coordinator) is April 7, 2016. (Late submissions may be penalized.)

All students registered in CMPT 400 are required to attend all of the Presentations, including the brief idea presentations; attendance will be taken and will be factored in to your final mark.

Policies

Recording of Presentations

Video or audio recording of presentations is not allowed, except with explicit permission of the presenter.

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 assignments 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. 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. "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>)

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/>.