

Faculty of Science

**CSCI 5010G – Survey of Computer Science
Research Topics & Methods**
Course outline for Fall 2018

1. Course Details & Important Dates*

Course Type	Day	Time	Location
Lecture	Wed.	2:10pm – 5:00pm	ERC1054

* for other important dates go to: www.uoit.ca >Current Students >Important Dates and Deadlines

2. Instructor Contact Information

Instructor Name	Office	Email
Dr. Jeremy S. Bradbury	UA4016	jeremy.bradbury@uoit.ca
Office Hours: Tues. 2:30pm-3:30pm, Fri. 2:30pm-3:30pm or by appointment.		

3. Course Description

CSCI 5010G – Survey of Computer Science Research Topics and Methods. This course is a survey of some of the main research topics in computer science and the corresponding computer science research methods. Topics covered vary from year to year and may include digital media, computer graphics, human-computer interaction, computer networks, security, health informatics, databases and software design. Research methods covered include library methods, topic analysis, data management, technical writing, presentations, evaluation methods and peer review. This course includes guest lectures by experts in the research topics covered. Credit hours: 3

5. Course Design

Survey of Computer Science is a required course for all Computer Science MSc and PhD students. The course is designed as a comprehensive survey of Computer Science research areas and research methods that provides a strong research foundation for any student pursuing graduate studies in Computer Science. The research areas/topics surveyed will be presented by weekly guest lectures from graduate faculty in the Computer Science program. In addition to surveying Computer Science topics the course will also survey Computer Science research methods. Each week half of the lecture will be devoted to introducing a new research method. Students will be evaluated by applying the covered research methods to their own area of interest within Computer Science.

6. Outline of Topics in the Course

- State-of-the-art research examples from the Computer Science graduate program fields:
 - Digital Media
 - Information Systems
 - Networks and IT Security
 - Software Design
- Research Methods to address the following questions:
 - How do I learn about my chosen field of research?
 - Finding research papers and creating an annotated bibliography
 - Conducting literature reviews, classifications and taxonomies
 - How do I select a research topic?
 - Conducting a topic analysis
 - Technical writing
 - How do I write a thesis proposal?
 - The structure of a thesis proposal
 - Defining a research hypothesis
 - Proposing a methodology and understanding the possible outcomes
 - Is there a right way to manage my research?
 - Research logs
 - Research meetings – agendas, notes
 - Backing up data! – The benefit of version control systems
 - How do I evaluate my research work?
 - Evaluation methods for computer science research tools and techniques
 - Evaluation methods for computer science research involving human subjects
 - The importance of reproducibility, threats to validity
 - Conducting ethical research
 - How do I write up and defend my thesis?
 - The structure of a thesis proposal
 - Advice on obtaining feedback from your supervisor and committee
 - How do I publish and disseminate my research?
 - Different kinds of research publication venues – workshops, conferences, journals, books
 - Publication quantity vs. quality – understanding publication metrics, citation counts, etc.
 - The peer review process and how to review a paper
 - Oral communication and research presentations

7. Required Texts/Readings

Textbooks.

Writing the Doctoral Dissertation: A Systematic Approach, 3/E

by Gordon B. Davis & Clyde A. Parker

Writing for Computer Science, 3/E

by Justin Zobel

Online Resources.

Online articles and websites will be used to supplement the textbook. Links to all online resources will be posted on the course website.

8. Evaluation Method

Annotated Bibliography	15%
Paper	25%
Peer Review	15%
Presentations	25%
Attendance & Participation	20%

All students are required to attend 80% of the lectures and 80% of the Computer Science seminars in order to pass the course.

9. Assignments and Tests

The schedule for course deliverables is as follows:

- Presentation 1 –Oct. 17, 2018
- Annotated Bibliography – mid Nov. 2018
- Paper (preliminary submission) – early Dec. 2018
- Peer Review – Dec. 2018
- Paper (final submission) – mid Dec. 2018
- Presentation 2 – Dec. 2018

10. Students with Disabilities

Accommodating students with disabilities at UOIT is a responsibility shared among various partners: the students themselves, SAS staff and faculty members. To ensure that disability-related concerns are properly addressed during this course, students with documented disabilities and who may require assistance to participate in this class are encouraged to speak with me as soon as possible. **Students who suspect they have a disability that may affect their participation in this course are advised to go to Student Accessibility Services (SAS) as soon as possible.** Maintaining communication and working collaboratively with SAS and faculty members will ensure you have the greatest chance of academic success.

Students taking courses on the North Campus Location can visit Student Accessibility Services in the U5 Building located in the Student Life Suite
Students taking courses on the Downtown Oshawa Campus Location can visit Student Accessibility Services in the 61 Charles St. Building, 2nd Floor, Room DTA 225 in the Student Life Suite.

Disability-related support and accommodation support is available for students with mental health, physical, mobility, sensory, medical, cognitive, or learning challenges. Office hours are 8:30am-4:30pm, Mon-Fri. For more information on services provided, you can visit the SAS website at <http://uoit.ca/studentaccessibility>

Students may contact Student Accessibility Services by calling 905-721-3266, or email studentaccessibility@uoit.ca

Students who require the use of the Test Centre to write tests, midterms, or quizzes MUST register online using the SAS test/exam sign-up module, found here www.uoit.ca/SASexams. Students must sign up for tests, midterms or quizzes AT LEAST seven (7) days before the date of the test.

Students must register for final exams by the registration deadline, which is typically 2 weeks prior to the start of the final examination period. SAS will notify students of the registration deadline date.

12. Academic Integrity

Students and faculty at UOIT share an important responsibility to maintain the integrity of the teaching and learning relationship. This relationship is characterized by honesty, fairness and mutual respect for the aim and principles of the pursuit of education. Academic misconduct impedes the activities of the university community and is punishable by appropriate disciplinary action.

Students are expected to be familiar with and abide by UOIT's regulations on Academic Conduct (Section 5.15 of the Academic Calendar) which sets out the kinds of actions that constitute academic misconduct, including plagiarism, copying or allowing one's own work to be copied, use of unauthorized aids in examinations and tests, submitting work prepared in collaboration with another student when such collaboration has not been authorized, among other academic offences. The regulations also describe the procedures for dealing with allegations, and the sanctions for any finding of academic misconduct, which can range from a resubmission of work to a failing grade to permanent expulsion from the university. A lack of familiarity with UOIT's regulations on academic conduct does not constitute a defense against its application.

Further information about academic misconduct can be found in the Academic Integrity link on your laptop. Extra support services are available to all UOIT students in academic development, study skills, counseling, and peer mentorship. More information on student support services can be found in the Academic Calendar (Section 8).

15. Freedom of Information and Protection of Privacy Act

The following is an important notice regarding the process for submitting course assignments, quizzes and other evaluative material in your courses in the Faculty of Science.

As you may know, UOIT is governed by the *Freedom of Information and Protection of Privacy Act* ("FIPPA"). In addition to providing a mechanism for requesting records held by the university, this legislation also requires that UOIT not disclose the personal information of its students without their consent.

FIPPA's definition of "personal information" includes, among other things, documents that contain both your name and your Banner ID. For example, this could include graded test papers or assignments. To ensure that your rights to privacy are protected, the Faculty of Science encourages you to use only your Banner ID on assignments or test papers being submitted for grading. This policy is intended to prevent the inadvertent disclosure of your information where graded papers are returned to groups of students at the same time. If you still wish to write both your name and your Banner ID on your tests and assignments, please be advised that UOIT will interpret this as an implied consent to the disclosure of your personal information in the normal course of returning graded materials to students.

If you have any questions or concerns relating to the new policy or the issue of implied consent addressed above, please contact accessandprivacy@uoit.ca

16. Course Evaluations

Student evaluation of teaching is a highly valued and helpful mechanism for monitoring the quality of UOIT's programs and instructional effectiveness. To that end, course evaluations are administered by an external company in an online, anonymous process during the last few weeks of classes. Students are encouraged to participate actively in this process and will be notified of the dates. Notifications about course evaluations will be sent via e-mail, and posted on Blackboard, Weekly News and signage around the campus.