

What is it?

This course serves as an introduction to systematic methods of testing and verification, covering a range of static and dynamic techniques and their use within the software development process. Concepts such as defining necessary reliability, developing operational profiles, techniques to improve and predict software reliability, preparing and executing tests, black box testing, white box testing, unit testing, system testing, and integration testing will be explained.

Instructor

Dr. A. Hamilton-Wright,
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socs.uoguelph.ca

Skills

Courselink

courselink.uoguelph.ca

Meetings

Discussion Class:
Wednesdays,
3:30-4:20am

Labs: Mondays,
11:30-1:20pm

All lab activities will take place online. Discussion class activities will be online until Sep 28, and an announcement on CourseLink will make clear what we can do after that point.

Pre-Requisites

CIS*3750 or CIS*3760

CIS*4150

Software Reliability and Testing/F21

Land Acknowledgement

The University of Guelph occupies Anishnaabe territory. This is treaty land and territory of the the Missisaugas of the Credit. The Between the Lakes Purchase (Treaty No. 3 of 1792) gave this land to the Six Nations (Haudenosaunee). The University occupies part of this treaty land.

While these words cannot remedy the historical injustices committed here, we acknowledge the ongoing cost of those acts, and recognize that a fair future must be based on truth, honesty, and commitment to others.

This is the land of the ancient Treaty of the Dish with One Spoon, an acknowledgement of the need to meet in peace and share the resources around us. In that understanding, we acknowledge, respect, and share our resources and ideas. We recognize that the value of our coming together in this place is to work to benefit *all*, and fairly share in the rewards.

Caregiving while Learning

This classroom celebrates that caregiving is a community task. We recognize that many in our classroom community will have caregiving demands on their time. We recognize that children and other dependants will be present in our learning environment. Further, we see that caring for the needs of those for whom we are responsible is an human task of critical importance, and that the timetable for this task is not always within our control.

Course Delivery Format

This course will be delivered entirely using online tools, using a “flipped classroom” strategy supported by synchronous discussions of course material. This worked quite well last year in CIS*3050, and we will build on that success.

Course material is available through the CourseLink website as a series of slide decks with an accompanying video/audio presentation. Transcripts for the presentation are available below the presentation itself, and controls for delivery speed, skip-back, closed captioning and re synchronization are available within the presentation tool. This tool, “<https://presentio.us>” is the best tool for this purpose I have found, and works well on desktop, tablet and phone platforms. If you have problems with the tool, please let me know – the company that makes the tool is very responsive to fix issues.

Students are therefore asked to prepare for a weekly synchronous classroom discussion period that will be held **Wednesday afternoon from 3:30-4:20** by reviewing the materials for the week, and being ready to discuss the material at hand.

The purpose of the synchronous classroom discussions is to cement the knowledge introduced in the course notes, answer questions, and have an open discussion about the presented material and its use. This of course only works if everyone has reviewed the material in advance of the class. To help ensure that everyone remembers to keep up, class members are asked to share their thoughts on the week’s material either in a Discussion tool, or if you wish to remain anonymous, via a submission using a Courselink quiz tool for that week. These submissions are due at 8:00am each Wednesday (or before) in order that the instructor can read them and have some thoughts ready for the afternoon’s class.

As you will therefore be reviewing the class material on your own time, we will not use the Friday afternoon slot in order to provide time for you to do this review.

Learning Outcomes

Students successfully completing this course will be able to:

- identify, describe, analyze and select coverage based testing strategies;
- construct models for finite state analysis and data flow;
- design, construct, analyze and implement functional, combinatorial, structural and data flow testing strategies;
- identify, select and critique GUI testing strategies;
- adapt software development processes to incorporate testing, and critically analyze the results; and
- identify strategies for security and performance testing, and quantitatively analyze the implementation of best practices.

Grading Breakdown

Discussion Prep Activities:		36 %
11× At least one idea/question per week @ ~2 % each*		
11× Topic material quiz @ ~1 % each†		
Assignments:		54 %
A1	Oct 17 @ 4:30pm	18 %
A2	Nov 9 @ 4:30pm	18 %
A3	Nov 23 @ 4:30pm	18 %
Graded Labs:		9 %
3×	Oct 4, Nov 1, Nov 15 @ 3% each‡	
Syllabus Check:		1 %

Notes on Grading Breakdown

* Each student must share at least one thought regarding the course material by 8:00am the day of to the synchronous classroom discussion period using either the “Discussions” tool (preferred), or the “Quiz” tool. Any material posted within this tool will be shared anonymously by the course instructors to the Discussions tool. At least one insight/idea per week is required, but more are welcome. (Best 11/12 used for grade)

† A short quiz (1-2 questions) based on the main topics of the week. (Best 11/12)

‡ There will be three graded labs. Additional supplementary labs with no graded component, but where you can work in groups and receive feedback from instructional staff will be listed in the CourseLink calendar.

Deadlines and Submitting Work

All assignments will be submitted electronically through Courselink. **All deadlines fall during the typical working day (4:30pm Eastern Time)).** Materials are not accepted after the indicated date and time unless **prior** arrangement has been made with the instructor (*i.e.*; in advance of the due date), **unless something beyond your control** has occurred. In that case you should contact the instructor at the earliest possible opportunity to discuss the situation.

Labs

The labs have a dual purpose – grades are kept low so both goals can be met:

1. provide a guided task to assist with assignment comprehension and approach;
2. provide an opportunity to interact and work with classmates in small groups.

For graded labs, a submission of a partial solution for the lab must be done before the lab period ends, but a complete solution may be submitted within 24 hours.

Students wishing to be assigned to groups must register on CourseLink the week before the lab; all other students are expected to self-select into groups.

Recommended Book

Pezze & Young **Software Testing and Analysis: Process, Principles and Techniques**, 2009
Wiley. ISBN: 978-0471455936

Textbook available online through the author’s website ([click here](#)). At this site you may register to receive a free copy from the authors. (Look for “Request free copy.”) Please note that it may take a day for processing. The authors have asked that each student request their own copy, in order to help them track usage.

If You Witness or Are Subject to Unacceptable Behaviour

If you are subject to or witness unacceptable behaviour, or have any other concerns, please notify the course instructor as soon as possible.

If you feel that the course instructor cannot or will not provide remedy for the situation, please contact any of these alternate resources:

Associate Director
(Undergraduate)
ugraddir@
socs.uoguelph.ca

Director of the School
director@
socs.uoguelph.ca

Associate Dean
(Academic)
cpesada@
uoguelph.ca

Office of Diversity and
Human Rights
dhrinfo@
uoguelph.ca
or extension **53000**

Sexual Violence
Support and Education
Coordinator
svinfo@
uoguelph.ca
or extension **53020**

Campus Community
Police at extension
52245

Code of Conduct

Our learning environment must be a friendly, safe and welcoming environment for all, regardless of ethnicity, gender, sexual orientation, age, ability, socioeconomic status, and religion (or lack thereof). As we wish to facilitate and encourage the fullest participation from everyone, this code of conduct outlines the expectations for all participants (including the instructor and other staff).[‡] This policy is aligned with the larger *University policy on Non-Academic Misconduct*.

Expected Behaviour

Participate in an authentic and active way. In doing so, you contribute to the health and value of this community.

Exercise consideration and respect in your speech and actions.

Attempt working together before conflict.

Refrain from demeaning, discriminatory, or harassing behaviour and speech.

Be mindful of your surroundings and of your fellow participants.

Alert community leaders (e.g., teaching staff) if you notice a dangerous situation, someone in distress, or violations of this Code of Conduct, even if they seem inconsequential.

Citizenship and Participation

Communities mirror the societies in which they exist and positive action is essential to counteract the many forms of inequality and abuses of power that exist in society.

If you see someone who is **making an extra effort** to ensure our community is welcoming, friendly, and encourages all participants to contribute to the fullest extent, **we want to know!**

Unacceptable Behaviour

Unacceptable behaviours include: intimidating, harassing, abusive, discriminatory, derogatory or demeaning speech or actions by any participant in our community, either in person, online, at any related events, or in one-on-one communications carried out in the context of community business.

Harassment includes: harmful or prejudicial verbal or written comments related to race, religion, disability, sex, gender, sexual orientation; inappropriate use of nudity and/or sexual images in public spaces (including computer labs and presentation slides); deliberate intimidation, stalking or following; harassing photography or recording; posting (or threatening to post) other people's personally identifying information (a.k.a.: "doxing"); sustained disruption of talks or other events; inappropriate physical contact, and unwelcome sexual attention.

Consequences of Unacceptable Behaviour

Unacceptable behaviour from any community member, including the course instructor and those members with decision-making authority, will not be tolerated.

Anyone asked to stop unacceptable behaviour is expected to comply immediately.

If a community member engages in unacceptable behaviour, action *will* be taken to ensure that such behaviour ends, beginning with action on the part of the course instructor, and escalating if necessary.

Additional information on University policy regarding harassment, conduct and human rights is available at the *University Human Rights Office* or the *Sexual Violence Support Centre*.

This Code of Conduct does not limit the right of any community member to seek additional support or redress for unacceptable or dangerous behaviour.

[‡]This code of conduct is based upon the citizen code of conduct available via <http://citizencodeofconduct.org/>, and is distributed under a Creative Commons Attribution-ShareAlike license (CC BY-SA 3.0)

Anti-plagiarism Tools

Please note that all materials submitted for grading will be evaluated using "MOSS" (Measure of Software Similarity) and "TurnItIn" tools, which detect plagiarism, illicit collaboration and reuse of materials, all of which constitute academic misconduct.

Inclusion and Accessibility

We are committed to an open and inclusive environment in this course.

Students with accessibility needs are invited to discuss how your needs may best be met with the instructor.

This does not replace, but instead complements any discussion or accommodation presented through Student Accessibility Services (uoguelph.ca/sas).

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study. Faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

In particular, **it is your responsibility** to accurately and clearly indicate the work of *any and all contributing people*, including yourself, in all presented and submitted materials. By handing in any work for this (or any) course, unless you have specifically identified any other authorship, **you are claiming that the sole authorship is your own**. Including work from any other person without directly indicating the source of such work constitutes academic fraud of some type.

The consequences of any type of academic fraud at the University are significant, and all cases that arise are submitted to the Dean's office for judicial review. **Please do not participate in plagiarism or any other type of academic fraud. It wastes valuable time and resources, which steals energy from the class.**

If you have any questions about what academic fraud such as plagiarism entails, or about any other forms of academic misconduct, please ask your course instructor, the library, or any other faculty. We will be very happy to help you understand this important concept.

University Wide Course Outline Information

University of Guelph

September 8, 2021

Abstract

The text below has been provided by the University of Guelph central administration, and is required to be distributed with course outlines provided for course guidance.

The information in this document is common to ALL courses offered by the University of Guelph. It has been collected here to make these common features of all courses distinct from the course specific instructions that have been given in the previous pages, and ensure that you can distinguish between that material authored by your course instructor, as separate from that required as part of University regulations.

- Graduate Calendar - Grounds for Academic Consideration
- Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

- Undergraduate Calendar - Dropping Courses
- Graduate Calendar - Registration Changes
- Associate Diploma Calendar - Dropping Courses

1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

- Undergraduate Calendar - Academic Consideration and Appeals

4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to re-submit work at any time.

5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

- For Guelph students, information can be found on the SAS website
<https://www.uoguelph.ca/sas>
- For Ridgeway students, information can be found on the Ridgeway SAS website

6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community—faculty, staff, and students—to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University’s policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

- Undergraduate Calendar - Academic Misconduct

- Graduate Calendar - Academic Misconduct

7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8 Resources

The Academic Calendars are the source of information about the University of Guelph’s procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

- Academic Calendars
<https://www.uoguelph.ca/academics/calendars>

9 Disclaimer

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

10 Illness

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

11 Further Information

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, these guidelines may be updated as required in response to evolving University, Public Health or government directives.