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## Syllabus

Western University  
London, Canada  
Department of Computer Science

# COMPUTER SCIENCE 4470y -- Software Maintenance and Configuration Management

**Fall 2022**

## COURSE OUTLINE

### 1. Course Description

#### Course Information

At the core, software maintenance involves taking existing software artefacts, understanding them, and then modifying or extending the code and/or other work products associated with the software (such as requirements, design and test suites). Other aspects, such as migrating a system from one platform to another, reverse-engineering (i.e., extracting higher-level artefacts such as design from code), and inter-connecting existing systems for inter-operability, are also part of this field. It is estimated that 60-70% of the software development effort in industry is maintenance and evolution. In this course, students will get practical experience in this field, working in a team, and addressing real-world issues of third-party systems.

Software maintenance requires at least three kinds of knowledge:

- **Domain knowledge:** knowledge about the area of application of the software (e.g. mobile applications, physics simulations, processing large amounts of data, computer music, healthcare, medical equipment, social, legal, improving software development, and more), the context in which the software system will be running (e.g., business, hospital, govt. department, etc.), the users of the system, and other.
- **Technology knowledge:** knowledge about the various software tools, languages, packages and technologies used in the software (e.g., iOS, Android, PHP, Java, application-specific technologies, etc.).
- **Code knowledge:** knowledge about the actual code, documentation, test cases and so on.

Students are anticipated to acquire all these three types of knowledge as appropriate for their projects.

#### List of Prerequisites for CS4470:

- [See this link](#) for CS4470

Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

### 2. Instructor Information

#### Instructor (i.e. Thesis Coordinator) Email

#### Office Phone Office Hours

Mondays 1pm-2pm

Laura Reid

lreid2@uwo.ca MC416 86905 Wednesday 10am-11am

Other times available by email appointment

Students must use their Western (@uwo.ca) email addresses when contacting the instructor. Please put CS4470 in the subject header.

### 3. Course Information

This course is entirely self-directed. Projects are to be carried out in groups of 3 to 4. Thesis supervisor can be changed only PRIOR to an agreement is made with the supervisor. The supervisor-group relationship is bound once the agreement has been made. Supervisor selection is an asynchronous process. Any group can contact any supervisor. Group acceptance by a supervisor is the prerogative of the supervisor; the course coordinator will not interfere in that process. The project topic can be changed (only with the same supervisor) any time PRIOR to the submission of the first progress report, provided that: there is mutual agreement between the supervisor and the group, however the first progress deadline will NOT change. It is up to the

group to find a suitable project and a supervising professor. If the group finds a project on their own, not part of the university, then they may find/approach a supervising professor to serve as a proxy between the group and the project to make sure the group stays on track.

## Learning Outcomes:

Once a student has completed this course, they will be able to:

- Manage and meet deadlines
- Communicate clearly with fellow team members
- Create/design/modify code that creates a solution to a large problem
- Contribute concerns and questions to their group members in a respectful way
- Construct a clear, well organized final report describing the problem and solutions which may include comparisons performed, conclusions drawn, threat analysis, etc.
- Assess the strengths and weaknesses of various methodological approaches relevant to a large project
- Deliver their project clearly to their peers in a presentation

## Class time:

11:30am - 12:30pm, Mondays, MC - 316. Initially we will only meet the first 2 classes (September 12 and September 19) to discuss how the course is run. After that, we will only have class as needed. You will get an announcement every time we need to schedule a class. Please use this time slot for the rest of the term to meet weekly with your group members and work on your project.

## 4. Course Materials

There are no required texts for this course. To assist with project development, there are many excellent references available online.

## 5. Method of Evaluations

This course has no final exam. The instructor will use the Owl assignments and contact with your supervisor to make sure you are on track with your project. Grades will be based on group project work, divided across the specified set of milestones as indicated in the table below. If for any reason the project schedule given below cannot be adhered to, the project marks will be prorated accordingly.

Deliverable Description	Grade	Due Date
1. Progress Report One	Pass/Fail	Monday, November 21, 2022
2. Progress Report Two	Pass/Fail	Monday, February 6, 2023
3. Report and Final Project/Code/Deliverables	50%	Monday, March 20, 2023
4. Presentation	50%	Third and Fourth Week of March

### NOTES:

- All deliverables (Progress Report 1, Progress Report 2, Final Report, Presentation) are mandatory. A course grade of zero will be given if there are any missing deliverables
- Please note that final report date and presentation date (TBA) are FIXED without exception (only university exception applies). THESE ARE (or will be) FIRM DATES. Failing to deliver these on the due date will result in the course grade of zero marks; no exception will be made.
- Presentations: Please make sure that EACH GROUP MEMBER is present for the date and time of your presentation. A member will receive a grade of zero mark for the course if not present during group presentation. No employment reasons, family trips, or other reasons that preclude you from making your presentation will be acceptable.

### About the Milestones and Assessment

Milestones 1-3 are meant to thrust the project towards completion and will involve core software development aspects (program code, architecture and design, testing, project management, documentation, etc.) and technologies. Milestone 4 is project presentation which will be scheduled at a later date.

- The specification of the deliverables will be posted on OWL.
- Any clarification or revision to the deliverables may also be posted on OWL. It is your responsibility to monitor this closely.
- The weight of each milestone is indicated above.

### Use of Third Party software artefacts

- Use of third party software artefacts (e.g., code, architecture, requirements, etc.) is permitted subject to any restrictions indicated at source.
- Use of third party artefacts must be explicitly declared in your documentation, giving citation of the source of the material used.
- If you use third party software artefacts not permitted at source, you may be charged with an academic offence.

### Submission of Milestones

- All milestone deliverables will be submitted to OWL.

- Late Submissions
  - Please note: Late milestones submissions will not be accepted. Final report and presentations will take place firmly on the scheduled date. No extensions will be possible.
  - If you have serious medical or compassionate grounds for an extension, you must take supporting documentation to the Academic Counselling unit of your faculty for advice.

## Regulations

- Projects will be carried out in groups.
- Student requests for single-person group will not be entertained.
- Project supervisor can be changed only PRIOR to an agreement is made with the supervisor. The supervisor/student-group relationship is bound once the agreement has been made.
- Supervisor selection is an asynchronous process. Any group of students can contact any supervisor independently.
- Group acceptance by a supervisor is the prerogative of the supervisor; the course instructor will not interfere in that process.
- Any individual student (or group) can solicit another student to join their group (subject to the size limit in the project proposal).
- The project topic can be changed (only with the same supervisor) subject to the approval of the course coordinator.
- Further regulations (implicit or discovered in real-time): There may be other issues that may crop up that are not listed above. The course instructor reserves the right to make the final decision on those issues.

## 6. Student Absences

Late milestones submissions will not be accepted. Final report and presentations will take place firmly on the scheduled date. No extensions will be possible.

If you have serious medical or compassionate grounds for an extension, you must take supporting documentation to the Academic Counselling unit of your faculty for advice. For further information, please consult the University's medical illness policy at [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/accommodation\\_medical.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf). The Student Medical Certificate is available at [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

## 7. Accommodation and Accessibility

### Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at <https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

### Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at: [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

## 8. Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, [https://www.uwo.ca/univsec/pdf/policies\\_procedures/section1/mapp113.pdf](https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf), the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: [https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

## 9. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support

services for survivors, including emergency contacts at [https://www.uwo.ca/health/student\\_support/survivor\\_support/get-help.html](https://www.uwo.ca/health/student_support/survivor_support/get-help.html). To connect with a case manager or set up an appointment, please contact [support@uwo.ca](mailto:support@uwo.ca).

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at [http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html) if you have any questions regarding accommodations.

Learning-skills counsellors at the Student Development Centre (<https://learning.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.