

CS4472A Software Specification, Testing and Quality Assurance Course Outline - Fall Term 2026

1. Course Information

Course Number and Title:	CS4472A	Software Specification, Testing and Quality Assurance
Lectures:	Tuesday	19:00 – 22:00 [REDACTED]

Instructor's Office Hours:

Marios Stavros Grigoriou [REDACTED] [REDACTED]

List of Prerequisites

- Computer Science 3307A/B/Y
- Students are assumed to be familiar with the Java programming language

Unless students have either the prerequisites for this course or written special permission from the Department of Computer Science to enroll in it, they may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on their academic record. This decision may not be appealed.

2. Instructor Information

Instructors	Email	Office	Office Hours
Dr. Marios Stavros Grigoriou (Course Coordinator)	[REDACTED]	[REDACTED]	[REDACTED]
Mingzhe Zhang	[REDACTED]	TBA	TBA

Students must use their Western ([@uwo.ca](mailto:uwo.ca)) email addresses when contacting their instructors.

All students will insert the prefix [CS4472A-2026] at the beginning of the subject line of every communication to the instructor or TA. Communications without this prefix might or might not be considered for reply.

Ways to reach the instructor and TAs:

My email, provided you use the necessary prefix.

The Brightspace conversations page once the relevant website is up and running will be monitored and replied to in a timely fashion.

Office hours will be held only when someone signs up on the related page on Brightspace.

Questions about course material should be preferentially directed towards the TA and only reach the instructor cc'ing the conversation with the TA only if the TA is unable to resolve a question.

Questions about course procedure should only be directed towards the instructor.

3. Course Syllabus, Schedule, Delivery Mode

Our classes will combine instruction on current technologies, and software engineering methods with collaborative note development and discussion of course topics.

Copies of lecture notes will be available on the course web site. They are not a substitute for attending lectures.

One of the most important phases of the software life-cycle is Testing. Software Testing does not occur in a vacuum. It aims to ensure that the system meets its functional and non-functional requirements. In this respect, it is driven by the system's specifications. Software Testing is applied at various levels. In the most granular level, Software Testing aims to verify that individual units (i.e. a class or a method) work properly. This is referred to as Unit Testing. Once individual units work, then the next level is to verify that the units work properly together. This is referred to as Integration Testing. Once all units work together, the system has to be tested to ensure that it works properly end-to-end, and that it does not enter an illegal or non-specified state. This is referred to as Functional Testing. In addition to these testing levels, there are testing approaches that are based on models (i.e. model-driven testing), and approaches that relate to object-oriented systems (Object-Oriented testing). Software Testing, however, is only one part of Quality Assurance. Assuming that testing is conducted properly, we have to evaluate the overall reliability of the software system, and measure some key metrics to estimate, within a certain degree of confidence, the quality level of the end system.

In this course, we will examine some key UML2 specification elements, namely sequence diagrams and state (activity) diagrams, and then we will discuss techniques for Unit, Integration, and Functional Testing. In the course we will use the Junit5 framework for hands-on training on Software Testing, time allowing we will use other tools too. In this course, we will also discuss reliability growth models, and software metrics that predict quality, effort, and cost.

The following list of topics may be covered, depending on time and the dynamics of the semester.

Basic principles of software testing	Life-Cycle based testing
UML2 sequence and activity diagrams	Object-Oriented testing
Unit testing	Software metrics
Integration testing	Software reliability growth models
Functional and acceptance testing	Effort and cost estimation
Junit	Software technical reviews
Model-driven testing	Build test automation

Key Sessional Dates

- Classes begin: September 9, 2026

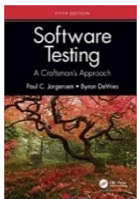
- Fall Reading Week: October 10 -- 18, 2026
- Classes end: December 9, 2026
- Examination period: December 11 -- 22, 2026

4. Course Materials

Textbook and Other Learning Materials

The book is NOT required!!

This is the recommended/optional textbook for the course. It is NOT required, but will be useful if your career takes you this way after graduation



Software Testing: A Craftsman's Approach, Fifth Edition Hardcover – Oct 18 2013
by Paul C. Jorgensen (Author), ISBN-13: 978-0367358495,
ISBN-10: 0367358492

[Link to purchase the book if you want it!!](#) Costs ~76 CAD

The book is NOT required!!

All course material will be posted to OWL Brightspace: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL Brightspace site regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL Brightspace site, they can seek support on the [OWL Brightspace Help](#) page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at [REDACTED] or [REDACTED].

- **Technical Requirements**

For this course you will need:

A functional laptop or desktop computer for software development using the IDE of your choice.

- A stable internet connection.
- Access to a Github account.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below.

Assessment	Weight	Due Date
Assignment 1	15%	Friday, October 23, 2026 (by 23:59)
Assignment 2	15%	Friday, November 13, 2026 (by 23:59)
Assignment 3	15%	Friday, December 4, 2026 (by 23:59)
Midterm Exam (Tentative)	20%	Saturday, November 7, 2026, 9:00 -- 11:00 a.m.
Final Exam	35%	Scheduled by the Registrar

All deliverables are due by 23:59 on their specified due dates unless otherwise specified. Due dates are subject to change.

Coverage

The midterm will cover all material taught up to and including the week prior to the exam. Further details will be announced in class.

The final exam is **cumulative** and covers all material from Week 1 through Week 12. It will be scheduled by the Registrar's Office and announced on OWL and in class.

Essential Learning Requirements

The three assignments in this course are essential learning requirements. They assess skills that cannot be replicated through the midterm or final exam. All three must be submitted to satisfy the requirements of the course.

When a student has not demonstrated proficiency in an essential learning requirement listed above, and when the shortfall results from a granted Academic Consideration, they will be withdrawn (WDN) from the course. The student may appeal to the Associate Dean (Academic) for reinstatement with an Incomplete (INC) standing. Where an appeal for INC is granted, their maximum course load may be reduced during the term in which they complete the outstanding course requirements.

Use of Generative AI Tools

Students are encouraged to use AI tools to **assist** them with the busy work of the assignments or to assist them with understanding some topics of the course.

That being said, it is preferable to always ask the instructor/TAs for any questions regarding course material as per the policy outlined above.

Regarding the busy-work part, if you are employed in software quality assurance it is almost certain that you will be using some transformer-based technology to assist you, however, it is important that you know and have at least tried to do everything yourselves.

As an instructor I use AI in the creation of practice questions, and I make an effort to audit the results of the AI for correctness. I will not be using AI to grade assignments or exams.

Information about Missed Coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs*, posted on the Academic Calendar: https://uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person. The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/ All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

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Midterm

This course has one midterm test and a cumulative final exam. There is no makeup test for a missed midterm. If a student misses the midterm, its weight will shift automatically to their final exam grade. If their final exam grade is higher than their midterm grade, their final exam grade will replace the midterm's weight in their overall grade. They do not need to request Academic Consideration for a missed midterm; the reweighting will be done automatically.

The only exception is an early sitting, offered solely for a university-sanctioned schedule conflict (e.g., conflict of two midterms, Varsity competitions) or a religious accommodation that prevents a student from writing the midterm at its scheduled time. If a student requires this accommodation, they must notify their instructor in writing no later than one week before the test. No other circumstance, including illness, qualifies for an early sitting or makeup; these are addressed through the automatic reweighting described above.

Assignments

This course has three assignments. All three are **essential learning requirements**. Students are expected to submit all three; no automatic no-penalty flexibility applies to this component, as all assignments are essential to satisfying the course's learning outcomes.

All take-home assignments include an automatic 48-hour period after the deadline during which students may still submit without a late penalty. For example, if an assignment is due on Friday, they may submit it by Sunday without penalty. After this 48-hour period, no further submissions will be accepted. Students do not need to request Academic Consideration for a submission within this window.

Team Project

Students are required to work cooperatively in teams to design and implement their project. Assignments 1 and 2 are team project deliverables. Assignment 3 will be announced later in the term.

You will be given the opportunity to form your own team.

The deadline to do so will be announced in class. After this date the instructors will decide on the composition of the teams. The instructors' decisions are final. The instructors will attempt to make sure that each team has an equal number of members.

Students are required to initiate contact and collaborate closely with their teammates.

If specified by the project description, the project code must run on the specified environment for acceptance testing purposes, but team members can develop it on their own systems. The project code must be implemented in the Java programming language.

Late project submissions will be accepted for up to two days after the due date, with weekends counting as a single day. No submissions are accepted beyond that point.

Meetings and Minutes

During the project, teams are required to have regular meetings to discuss progress and plan next steps.

Each team is required to write minutes of each meeting, listing the attendance, the topics of discussion, any decisions that were made, and which team members were assigned which tasks. These minutes must be submitted with the project report in each deliverable and will provide input for the overall assessment of the project.

Individual Contribution and Mark Adjustment

Normally, each student's project mark will be computed directly from the team marks for the team tasks. However, the instructors reserve the right to adjust an individual's mark -- raising or lowering it -- based on project participation, meeting minutes, and the TA's or instructor's knowledge of a student's contribution and mastery of the course material.

Students are expected to complete a reasonable, fair, and equitable portion of their team project. Failing to do so may result in a significant deduction of the final mark allocated to the project at the discretion of the instructor. It is the student's responsibility to ensure that they are contributing at a satisfactory level. A student should consult with their TA or instructor if concerns or questions arise.

Deadlines: The 48-Hour No-Late-Penalty Period

All take-home assignments, quizzes, and labs with a stated due date include an automatic 48-hour period after the deadline during which students may still submit without a late penalty. For example, if an assignment is due on November 5, they may submit it until November 7 without penalty. After this 48-hour period, no further submissions will be accepted, and students do not need to request Academic Consideration for a missed deadline; their grade for this component will be calculated as described above.

Special Examination

Per university policy, Academic Consideration requests with supporting documentation are required for the final examinations scheduled during official examination periods by the Registrar's Office.

If the student has been approved by the Academic Advising Office to write a Special Examination (SPC) and the final exam is their only outstanding course component, an SPC will be assigned to them and scheduled by the instructor per university policy.

If the student misses their SPC exam and is approved for Academic Consideration, they will be withdrawn from the course without academic penalty. If they experienced extenuating circumstances such as prolonged illness, they may appeal to the Associate Dean (Academic), on a case-by-case basis, for the opportunity to write the final exam the next time the course is offered. An outstanding SPC will reduce their course load for the term in which the exam is deferred, as outlined in the [Definitions of Types of Examinations](#) policy.

If the student misses their SPC exam and Academic Consideration is not approved, or was not requested, they will receive a grade of zero on the exam.

6. Additional Statements

6.1 Religious Accommodation

When a recognized religious holiday either requires a student to be absent from the University, or requires or prohibits an activity that makes it impossible for them to complete an academic requirement scheduled that day, they are entitled to accommodation. No student will be penalized for an absence for religious reasons, and an alternative means of satisfying the requirement will be arranged. This accommodation is provided in accordance with the University's policy on Accommodation for Religious Holidays:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

The student should submit their requests through the Student Absence Portal (SAP), identifying the conflict and the specific course component(s) affected (e.g., test, midterm, exam).

Midterms and Tests: If a religious observance conflicts with a midterm test, they must submit their request no later than **one week** before the test. Their instructor will arrange an early sitting of the test. As set out above, no makeup test is offered for any other reason; this early sitting is available specifically for this accommodation.

Final Examinations: If a religious observance conflicts with the final exam, the student must submit their request no later than **two weeks** before the exam. Their instructor will arrange a Special Examination to take place no later than one month after the end of the examination period.

Students are responsible for finding out what was covered in any class they miss due to a religious observance, and for taking the appropriate steps to keep up with the course.

If a suitable arrangement cannot be reached between a student and their instructor, they should consult the Undergraduate Chair of the department offering the course, and if necessary, the Associate Dean (Academic) of the Faculty of Science.

For a list of recognized religious observances, please visit the calendars posted on the Equity, Diversity & Inclusion website - <https://www.edi.uwo.ca> (About Us – Resources – Additional Resources – Calendars).

6.2 Academic 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.

6.3 General Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

Use of @uwo.ca email: In accordance with policy, 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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

Requests for Relief (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

https://uwo.ca/univsec/pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf

Procedures on Request for Relief from Academic Decision (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf

6.4 Scholastic Offences

Policy on Scholastic Offences:

https://uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_offences.pdf

Procedures on Scholastic Offences (Undergraduate):

https://uwo.ca/univsec/pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf

Use of Electronic Devices During Assessments

In courses offered by the Faculty of Science, the **possession** of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, hidden cameras and wireless earbuds.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at a student's desk, on their person, or within reach during an assessment will be treated as a scholastic offence, **even if the device is not in use**.

Effective September 2026, the typical penalty for this offence is a failing grade in the course AND a 12-month prohibition on retaking the course.

Only devices expressly permitted by the instructor (e.g., non-programmable calculators) may be brought into the assessment room. It is their responsibility to review and comply with these expectations.

Use of Generative AI Tools

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is the student's responsibility to seek clarification before using any AI tools in academic work.

6.5 Support Services

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

Mental Health Support. 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.

Gender-Based and Sexual Violence. Western is committed to reducing incidents of gender-based and sexual violence (GBSV) and providing compassionate support to anyone who has gone through these traumatic events. If a student has experienced GBSV (either recently or in the past), they can find information about support services for survivors, including emergency contacts, at:

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 [REDACTED].

Accessibility for Coursework. A student may contact the course instructor if they require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to them. If they have any questions regarding accommodations, they may also contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html

Learning Development and Success. Learning-skills counsellors at Learning Development and Success (<https://learning.uwo.ca>) are ready to help students improve their learning skills. The facility offers 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.

Student Councils.

Student-run support services are offered by the University Students' Council (<https://westernusc.ca>) and the Science Students' Council (<https://www.westernssc.ca>).