

THE UNIVERSITY OF
WESTERN ONTARIO
DEPARTMENT OF
COMPUTER SCIENCE

CS2212B Introduction to
Software Engineering
Course Syllabus --- Winter 2022

1. Course Information

Course Information

Course Number and Title:	CS2212B – Introduction to Software Engineering
Lectures:	Tuesday 9:30 – 11:30 MC-110 (On-line until Jan. 30) Wednesday 10:30 – 11:30 NSC-1 (On-line until Jan. 30)

Office hours will be conducted on-line. See Zoom link in course's Web site for details and IDs)

Instructor's Office Hours:

Kostas Kontogiannis Office Hours: Wednesday 17:00 – 19:00 On-line via Zoom

TA Office Hours:

Grigoriou, Marios,	Monday	16:30 - 18:30	On-line via Zoom
Hamdani, Syed W.,	Tuesday	16:30 - 18:30	On-line via Zoom
Jeshani, Taabish,	Wednesday	15:00 - 17:00	On-line via Zoom
Asgarian, Sepehr,	Thursday	16:30 - 18:30	On-line via Zoom
Jiang, Hao,	Friday	16:30 - 18:30	On-line via Zoom

Prerequisite Requirements

- Computer Science 2210a/b and 2211a/b
- Students are assumed to be familiar with the Java programming language

Note: Unless you have either the requisites 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.

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

Powerpoint copies of lecture notes and pre-recorded MP4 videos for all lectures obtained from last year's offering are posted in the course's web site.

2. Instructor's Information

Prof. Kostas Kontogiannis, Ph.D. P.Eng.
Email: kostas@csd.uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting their instructors. Please do not send emails to the personal accounts of the instructor or the TA unless it is an absolutely urgent or personal matter.

Please use the forum for any course related questions the answers of which are of the benefit to the whole class (e.g. questions about the project, clarification questions, etc.).

You can also use the cs2212b@uwo.ca email account for any other inquiries that can be addressed to the instructor and the TA. The cs2212b@uwo.ca account is monitored by both the instructor and the TA.

3. Course Syllabus, Schedule, Delivery Mode

The informal approaches that most individual programmers use when writing small programs do not work very well when applied to the development of large pieces of software and team programming situations. Software engineering is a discipline that applies principles of traditional engineering to improve software, as well as its development and maintainability.

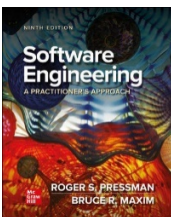
In this course, we will examine the stages of the software engineering process, including requirements gathering, specification, design, implementation, and testing. The principles of object-oriented design and analysis and user interface design will be stressed, while a term project completed within a team of 3 students will serve to reinforce concepts learned and give students practical experience developing software in a team environment. UML (Unified Modeling Language), the standard tool for expressing designs in software engineering, will be introduced. All programming for this course will be done in Java.

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

Software process models	UML Class Diagrams
Cost estimation and risk management	Design Patterns
Agile methodologies	Software Testing methods
PERT and Gantt charts	Software Architecture Styles
Object-Oriented design principles	Source control
User stories	User interface design
UML Use Case Diagrams	Build automation

4. Course Material

The textbook related to the material to be presented in class is the following:



Software Engineering: A Practitioner's Approach
9th Edition
By Roger Pressman and Bruce Maxim
ISBN10: 1259872971
ISBN13: 9781259872976
<https://www.mheducation.com/highered/product/1259872971.html>

We will be using OWL to host the course content. *Eclipse* (or a similar IDE of your choice) will be used for software development. Depending on schedule and availability, other tools such as *BitBucket* and *Microsoft Teams* will be used for group collaboration and source code version control. Instructions will be provided in the class.

Students should check the course's Web site in OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

All course material will be posted to OWL: <http://owl.uwo.ca>

If students need assistance, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

The strategy to study for this course is to read the lecture notes, watch the videos (optional but encouraged), attend the classes, keep notes in the class, and read the textbook and the supporting material in the hyperlinks posted after each class unit.

This course is scheduled to be delivered in-person after January 30, pending University approval. The lecture notes for the class are posted on OWL in Power Point format. Pre-recorded videos for all lectures from last year's offering are also available for your convenience. You can use the pre-recorded videos for reviewing the material presented in class. **These are not-intended to replace in-person attendance.** The posted video material which has been recorded in Fall 2020 is the same in content as the material to be presented in the Fall 2021 offering.

In addition to the electronic copy of the book available via the course's Web site in OWL, please note that the Bookstore will offer the following general services for the Fall term.

- Online ordering of physical (paper) books through the Bookstore website. Items can be shipped to students directly (online order at bookstore webpage) if they are learning remotely.
- Students buying books on campus will have the option of some form of curbside pickup
- Obtaining commercial electronic books, to be sold through the Western Bookstore website
- Converting Custom Course Materials (textbooks or lab manuals) to an electronic format. The e-books will be accessible only via the Bookstore's online platform. Students will not be able to download the content for offline access.

If you have any questions or want to place an order, contact Rachel Sandieson, Course Materials Manager (rsandies@uwo.ca). Information on how to access the on-line version of the book will be also posted on OWL.

5. Methods of Evaluation

Individual

--- Midterm	15%	(Date to be confirmed)
--- Quizzes	10%	(5 short quizzes)
		(5% participatory and 5% marked)
--- Final Exam	30%	Scheduled by Registrar

Team Project

--- Requirements Specifications Document Part 1	15%	(February 16)
--- Design Specifications Document and Initial Coding	15%	(March 9)
--- Full Code Delivery and Presentation	15%	(April 4)

All deliverables are due by 23:55:59 on their specified due dates. Due dates are subject to change.

If, for any reason, the schedule given above cannot be adhered to, the marks will be prorated as follows:

- The individual components are worth a total of 55%. If any individual components must be cancelled, the remaining individual deliverable weights will be prorated to add up to 55%.
- The project components are worth a total of 45%. If any project components must be cancelled, the remaining project deliverable weights will be prorated to add up to 45%.

Each student will receive a mark for the project, which makes up 45% of their final grade in the course.

- Normally, the individual's combined 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, project presentation, meeting minutes, and the TAs' or instructor's knowledge of a student's attendance and participation in the course and/or mastery of the course material.
- During project (code) presentation the examiners (instructor, TAs) will ask questions for any part of the project to any team member, and not limited to the part(s) of the project the individual team member has worked on.
- Each individual must receive a Combined Project Mark of at least 40% (18 out of 45) in order to receive a passing grade in the course.
- 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 he/she is working to a satisfactory level. A student should consult with his/her TA or instructor if concerns or questions arise.

Accommodated Evaluations

Alternate considerations provided for excused absences (i.e. SRA, SMC, non- medical reasons) are:

- In case of a missed midterm exam, a make-up midterm exam will be offered within a week of the normal scheduled exam.
- In case of a missed make-up midterm exam, the final exam will account for the cumulative mark of the midterm and the final (i.e. 45%).
- In case of an excused inability of one or more members to complete a project deliverable by the given deadline, the whole deliverable will be given an extension of 48 hours from the initial reported absence, and no further extensions will be granted.

Exams

- We are planning to conduct the midterm and the final exams in-person. In case of extenuating circumstances a remote proctoring service such as Proctortrack may be used for conducting tests and examinations (midterm, final). In that case, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. More information about this remote proctoring service is available in the Online Proctoring Guidelines at the following link: <https://www.uwo.ca/univsec/pdf/onlineproctorguidelines.pdf>
In the case of remote proctoring, you will be required to have a reliable internet connection and a device that meets the technical requirements for this service. Information about the technical requirements are available at the following link: <https://www.proctortrack.com/tech-requirements/>
- If we have to revert using Zoom for exam invigilation in this course, you will be required to keep your camera on for the entire session, hold up your student card for identification purposes, and share your screen with the invigilator if asked to do so at any time during the exam. The exam

session using Zoom will not be recorded*. (*Please note that Zoom servers are located outside Canada. If you would prefer to use only your first name or a nickname to login to Zoom, please provide this information to the instructor in advance of the test or examination).

- There will be a one and a half hour long midterm exam in this course worth of 15%. The date will be confirmed and posted on the courses Website on OWL. Details on the midterm exam will be posted on OWL.
- There will be five, 30 minutes long, on-line quizzes posted on OWL. Each quiz will have 5 multiple choice questions. The quizzes can be performed on OWL any time within 24 hours of time that they been posted. The duration of each quiz is fixed to 30 minutes.
- **The dates of the quizzes will be Friday 28/1, Friday 11/2, Friday 4/3, Friday 18/3, and Friday 1/4.**
- The quizzes are worth 2% each. From this 2%, 1% comes as a participatory mark (i.e. you obtain it by just submitting the quiz), and 1% of the mark comes by marking your answer. Quizzes will comprise multiple choice responses. Answering questions in each quiz may require material taught up to the time the quiz is held.
- The quizzes will utilize the OWL system and the students are required to have Internet access and be able to login to the OWL system. The students can submit their quiz any time within a 24 hour period form the tine the quiz is posted.
- The quizzes will require the use of electronic devices such as a laptop, tablet, or smart phone, with internet connectivity and web browsing capability.
- A 3-hour, closed-book final exam will be held at the end of the course, during the final exam period. The final exam will be worth 30% of the total mark. Details on the final exam will be posted on OWL. Please see related statements in the **Academic Policies** section below.
- Each student must achieve a grade of at least 40% on the final exam in order to be given a passing grade in the course.
- Students must bring their UWO identification to the exam.
- The final exams are scheduled by the Office of the Registrar during the final exam period. Details will be provided when they are available. Students are advised not to make travel plans until they have consulted the final exam schedule.
- As an important note, submissions will be subject of a similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Conduct

The teaching staff reserve the right to deduct marks from the students course grade based on misuse or inappropriate conduct of any collaborative tools used in class. The tools and the forums are for collaboration only. Personal or judgmental statements targeting individuals are not acceptable. It is your responsibility to protect any private information of yours in these collaborative environments.

Statements concerning Online Etiquette

Components of this course will involve online interactions (e.g. office hours). To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- “Arrive” to any scheduled on-line meetings on time
- Use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- To minimize background noise, mute your microphone until you are invited to speak, unless directed otherwise

- In order to give us optimum bandwidth and web quality, turn off your video camera unless you are invited to speak
- Please be prepared to turn your video camera off at the instructor's request if the internet connection becomes unstable
- Unless invited by your instructor, do not share your screen in the meeting

The course instructor or the TA will act as moderator for the meeting and will deal with any questions from participants. To participate please consider the following:

- If you wish to speak, use the "raise hand" function and wait for the instructor to acknowledge you before beginning your comment or question.
- Please remember to unmute your microphone and turn on your video camera before speaking.
- Self-identify when speaking.
- Please remember to mute your mic and turn off your video camera after speaking (unless directed otherwise).

General considerations of "netiquette":

- Keep in mind the different cultural and linguistic backgrounds of the students in the course.
- Be courteous toward the instructor, the TAs, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. "Flaming" is never appropriate.
- Be professional and scholarly in all online postings. Use proper grammar and spelling. Cite the ideas of others appropriately.

Note that disruptive behavior of any type during online meetings, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

Team Project

- Students are required to work cooperatively in teams to design and implement their project.
- **You will be given the opportunity to form your own team. The deadline to do so is Wednesday January 19. 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 4 members.**
- Individual students may submit requests to be taken out of the team to which they were initially assigned, if such requests are received by **Monday, January 23**, and a good reason (such as a prior conflict with one of the team members) is given. Individual students may indicate a preference to which team they want to be assigned instead; the instructors will try to accommodate any such requests, if possible. **No changes are allowed in team composition after Monday January 23.**
- Students are required to keep in 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 will be accepted for up to two days after the due date, with weekends counting as a single day. The assignments are due on Wednesday 11:55 pm. Submissions by Thursday 11:55 pm will incur a penalty of 8% and submissions until Friday 11:55pm will incur a penalty of 20% in total. No submissions are accepted after Friday 11:55 pm.
- No late submissions for quizzes, midterm, and final exams are accepted.

- **Project demonstrations will take place between Tuesday, April 5 – Friday, April 8.** The exact dates will be posted later in the term. This involves the instructor and TAs running and testing each team's finished implementation of the team project, as well as asking questions about the process and design of the project. All team members must be present for the acceptance testing.
- The schedule for project demonstrations will be determined later in the term and posted on OWL. **Project demonstrations will be conducted on-line using Zoom.**

Meetings and Minutes

- During the course of the project, teams are required to have weekly meetings to discuss progress and plan for the future.
- Each team is required to write minutes of each meeting, listing the attendance, what the topics of discussion in the meeting were, 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 to be used for the overall assessment of the project.

6. Ground Rules

Masking Guidelines

Students will be expected to wear triple layer, non-medical, paper masks at all times in the classroom as per University policy and public health directives. Students who are unable to wear a mask must seek formal accommodation through Western Accessible Education, and present medical documentation. Students are not permitted to eat or drink while in class to ensure masks stay in place. Students will be able to eat and drink outside of the classroom during scheduled breaks.

Students unwilling to wear a mask as stipulated by Western policy and public health directives will be referred to the Dean, and such actions will be considered a violation of the student Code of Conduct.

Course Absences due to Daily COVID Screening Questionnaire

Missed assessments (e.g., presentations, essays, quizzes, tests, midterms, etc.) require formal academic considerations (typically self-reported absences and/or academic counselling). Methods for dealing with missed work and course content are at the discretion of the instructor(s). Students should be aware that some learning outcomes cannot be easily made up and may need to be completed in a subsequent year. Your instructor will provide you with further information as to how this applies within this course. Students who demonstrate a pattern of routinely missing coursework due to self-reported COVID symptoms, and therefore do not demonstrate mastery of the learning outcomes of the course, will not receive credit for the course.

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any remaining assessments will also be conducted online as determined by the course instructor. In the event that online learning is required, a stable internet connection with working microphone and webcam will be required. As has been the case in the past, the decision to pivot to online learning will be made by Western, and not individual instructors or departments (excepting temporary online instruction in the event of instructor illness).

Other Important Points

- Western has both a vaccine and a mask mandate.

- Students must complete the symptom checklist every day. Students who are found to be on campus who have not completed the symptom checklist or have failed the daily symptom check will be referred for investigation under the Student Code of Conduct.
- Students are expected to carry their student cards to campus each day in anticipation of spot checks by Building Ambassadors.
- Students not wearing masks will be asked to leave the classroom. Students with accommodations approved by Accessible Education must make arrangements with the instructor before coming to class, lab, practicum or clinical site.
- Eating and drinking is prohibited in the classroom to facilitate proper mask wearing. Individuals found to have attended class without appropriate vaccination, or who are found to have engaged in fraud related to the vaccination policy, will face academic sanctions up to and including expulsion.
- Students who are not fully vaccinated by October 12th and who are not granted an exemption under the policy will be issued a trespass order. Enforcement of this trespass order will be carried out by campus police, and will be accompanied by academic sanctions, including expulsion.
- Please be respectful of your classmates and your instructors at all times, as we navigate re-entry.

7. Student Absences

Academic Consideration for Student Absences

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

- (i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:
 - an absence must be no more than 48 hours
 - the assessments must be worth no more than 30% of the student's final grade
 - no more than two SRAs may be submitted during the Fall/Winter term
- (ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.
- (iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered, unless otherwise instructed in the course outline.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

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

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

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>.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under [Special Examinations](#)).

8. Accommodation and Accessibility

Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD), 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),

9. 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,

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 his/her official university address is attended to in a timely manner. Instructions on electronic devices allowed during the midterm and final exams will be posted prior to the exams on the course's website on OWL.

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:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

All required deliverables may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

In case of a health lock-down, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

10. 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/>.

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 (519) 661-2147 if you have any questions regarding accommodations. 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/>.

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.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.

Students who are in emotional/mental distress should refer to Mental Health@Western (<http://www.health.uwo.ca/mentalhealth>) for a complete list of options about how to obtain help. Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.

This course is supported by the Science Student Donation Fund. If you are a BSc or BMSc student registered in the Faculty of Science or Schulich School of Medicine and Dentistry, you pay the Science Student Donation Fee. This fee contributes to the Science Student Donation Fund, which is administered by the Science Students' Council (SSC). One or more grants from the Fund have allowed for the purchase of equipment integral to teaching this course. You may opt out of the Fee by the end of September of each academic year by completing the online form linked from the Faculty of Science's Academic Counselling site. For further information on the process of awarding grants from the Fund or how these grants have benefitted undergraduate education in this course, consult the Chair of the Department or email the Science Students' Council at ssc@uwo.ca.