Week 1

CS2212
Introduction to Software Engineering

Course Syllabus

Some images and content from Software Engineering: A Practitioner's Approach 9th Edition By Roger Pressman and Bruce Maxim

Masks

- Western requires all students wear a medical-grade (ASTM level 3) mask in the classroom.
- If you are not wearing a mask, you will be asked to leave.
- Can take mask off temporarily when drinking water (no food in class-rooms).
- Can take mask off while presenting, performing, facilitating or speaking to a group

Your Instructor

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Office: MC387
Office Hours: By appointment
Appointment Link: http://danielservos.ca/apt

Middlesex College 3rd Floor

Course Description

Course Syllabus:

http://danielservos.ca/cs2212/CS2212A_Winter_2023_Outline.pdf

Course Description:

*Computer Science 2212 is an **introduction to software engineering** and its **application in team software projects**. In this course, we will examine the stages of the software engineering process, including **requirements gathering**, **specification**, **design**, **implementation**, and **testing**. We will also cover the practicalities of software engineering and a number of the key tools and technologies leveraged in successful endeavours.*

Course Description

Format:

In-person *with small online components* *(using OWL, Atlassian Software, occasional videos)*

In-Class:

- Lectures
- Tutorials
- Short Groupwork Activities

Tuesday: 9:30 AM to 11:30 AM, MC-110
Wednesday: 10:30 AM to 11:30 AM, NSC-1

Online:

- Weekly posting of tasks, assigned readings, ungraded homework questions *(on OWL)*
- Support and online discussion *(on OWL forums)*
- Using tools to support your group project *(using Atlassian Software)*
- Occasional videos and supplementary resources *(posted on OWL)*

Course Sites

OWL

- https://owl.uwo.ca
- Main course site
  - Syllabus
  - Slides
  - Project details and resources
  - Forums
  - Weekly readings, homework and tasks
  - Announcements
  - Supplementary resources
- Updated weekly

Course Sites

CS1.CA ASK Tool

- http://cs1.ca/ask
- Ask questions live during class
- Input group work codes
- Input participation tickets
- Check codes you have put in so far

Atlassian Software

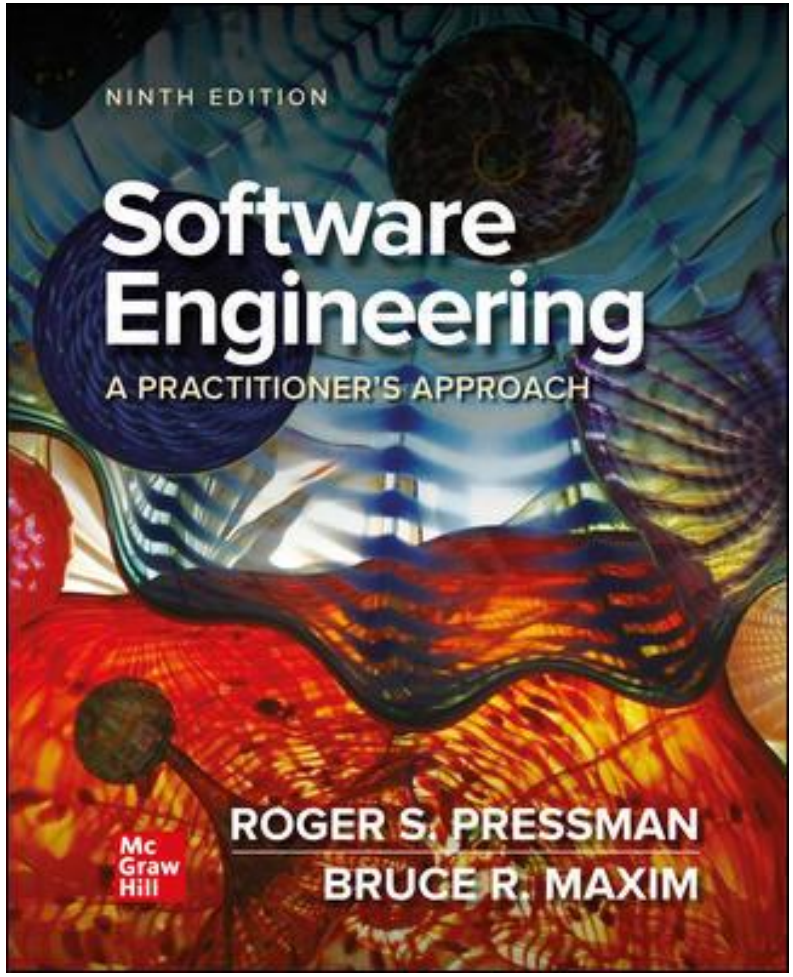
- Project management tools for use in the group project.
- Includes:
  - JIRA projects
  - Confluence Spaces
  - Bitbucket Repositories
- More details on this after groups are formed.

Required Textbook

Software Engineering A Practitioner's Approach *(9th Edition)*

By Roger Pressman and Bruce Maxim

- Each week readings will be assigned from this textbook.
- Each week recommended homework questions will be assigned from this textbook *(these are ungraded)*.
- Both physical copies *(UWO bookstore)* and an eTextbook *(from Mc Graw Hil)* are available.



Bookstore URL: *https://bookstore.uwo.ca/product/9781260548006*
eTextbook URL: *https://www.mheducation.com/highered/product/1259872971.html*

Content From Textbook Covered

Tentative Reading List:

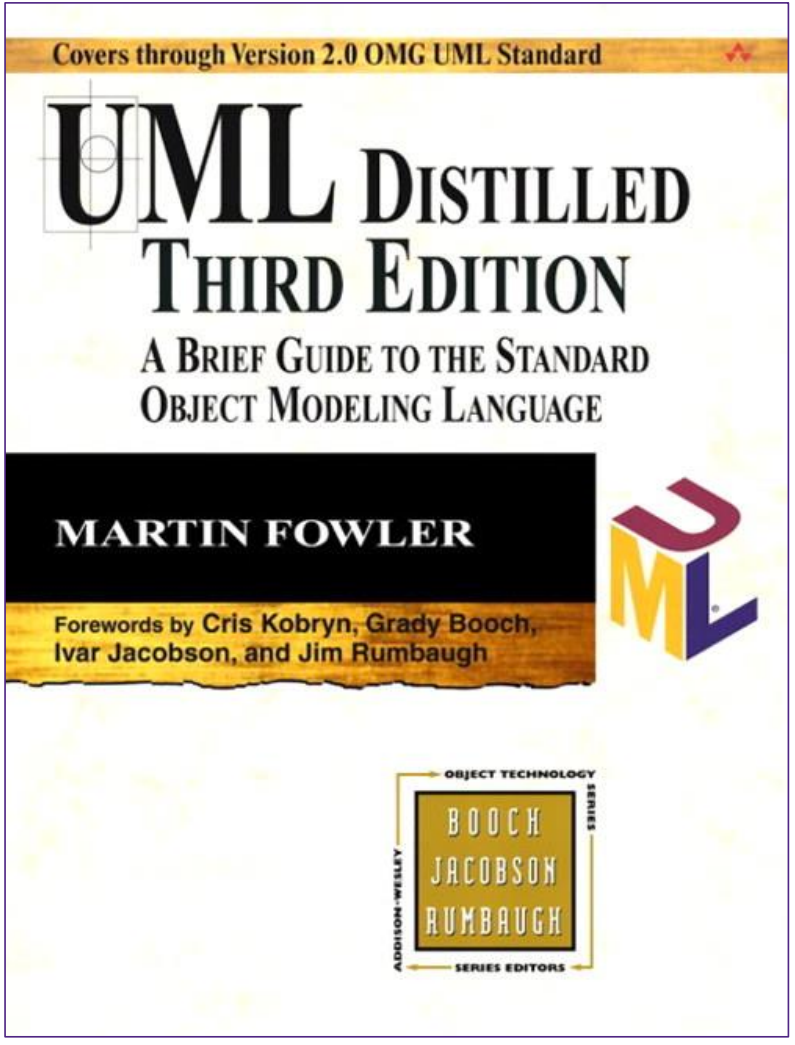
- **Chapter 1:** Software and Software Engineering
- **Chapter 2:** Process Models
- **Chapter 3:** Agility and Process
- **Chapter 4:** Recommended Process Models
- **Chapter 7:** Understanding Requirements
- **Chapter 8:** Requirements Modeling – A Recommended Approach
- **Chapter 9:** Design Concepts
- **Chapter 10:** Architectural Design – A Recommended Approach
- **Chapter 11:** Component-Level Design
- **Chapter 12:** User Experience Design
- **Chapter 14:** Pattern-Based Design
- **Chapter 15:** Quality Concepts
- **Chapter 16:** Reviews - A Recommended Approach
- **Chapter 17:** Software Quality Assurance
- **Chapter 19:** Software Testing – Component Level
- **Appendix 1:** An Introduction to UML

Optional Textbook

UML Distilled
(3rd Edition)

By Martin Fowler

- Optional text that may be helpful when we cover UML.
- **Not required**, no assigned readings/homework will be given for UML Distilled.
- Just for reference.



Student Evaluation

Element	Weight
Group Project	50%
Participation	10%
Final Exam	40%

*To be eligible to obtain a passing mark in the course, your **final exam grade must be 40% or higher** AND you must have an **overall group project grade of at least 40%.***

*To be eligible to obtain a C grade or higher, your **final exam grade must be 50% or higher** AND you must have an **overall group project grade of at least 50%.***

Group Project

*All students are required to **be an active participant** in a term long group project that will involve the **specification, design, and implementation of a reasonably large-scale software system**, implemented **using Java**.*

*While the project is a group project, **grades will be assigned to each student based on both group and individual performance** for each component. Individual performance will be based on a number of factors, some of which may include peer evaluations, contributions made during class, repository logs, individual reports of work completed, meeting minutes, individual performance during the project demonstration, and so on.*

Important Group Project Rules

1. ***All team members are expected to contribute*** *in some way to* ***every project component*** *including requirements, design, implementation, and testing.*

2. ***All teams must make active use of the Atlassian Software*** *(Confluence, Jira, and Bitbucket) as described in the project management component throughout the whole project (not just upload files and create tasks at the end).*

3. ***All teams must hold and document weekly face-to-face meetings****. Minutes must be kept on Confluence.*

Project Topic

Western Geographic Information System (GIS)

*The main purpose of the project will be to **create an application that leverages the maps made available by Western** to allow users to search and explore its interior spaces. At a high level, your application will **allow users to search for rooms in buildings**, **locate points of interest in a building**, **browse through the maps provided**, and **create and save their own personal points of interest**. Your application must also have an **accompanying editing tool** to facilitate the creation and editing of map metadata by developers for the application.*

Full Project Specification Now on OWL!

Group Project

Group Responsibilities

- **Create teams of 4 or 5 students (5 preferred)**
  - Make you team request on OWL by joining an open team *(found under the Site Info tab on OWL)*
  - If you do not request a team by January 20th, you will be added to one by the course instructor.
  - If you request a team with less than 5 students, more members may be added to top it up.
  - I will try to honor your requests, but some teams may need to be rearranged to make groups of 5.
- **Meet with your group weekly starting week of January 23rd**
  - You must meet weekly and keep minutes of your meeting (on confluence).
  - Weekly meetings can be in-person or online but must be face-to-face (e.g. use zoom if online). Can not be done over text-based chat or voice only.
  - Meeting times must be arranged that work for everyone in the group (not on holidays or reading week).
  - Meeting length is up to you but a minimum of 1 hour is recomened.

Group Project

Group Responsibilities

- **Meet with your assigned TA weekly (starting week of January 23rd)**
  - Each team will be assigned a teaching assistant (TA).
  - You must work with your assigned TA to find a day, time, and location in Middlesex College to meet each week.
  - Meetings with the TA are at most 20 minutes in length.
  - At least 3 of the 5 members of your team must be in attendance for a TA meeting to be held.
  - You may combine this meeting as part of your weekly general team meeting.
  - These meetings should act as a sort of scrum meeting where you discuss progress your group has made in the last week, create a plan for the tasks that will be completed during the next week, and work with the TA on any issues that have arisen over the last week.
  - It is also your team's responsibility to take minutes of the TA meetings as you would a general group meeting.

Group Project

Group Responsibilities

- **Define clear roles and expectations for your team**
  - Documented in team contract.
  - Who will do X, who is responsible for Y, etc.
  - Minimum time requirements, meeting times/length, etc.
- **Decide on a common development environment and tools**
  - All teams must program in Java 19 and use Bitbucket Repositories
  - Other tools mostly up to your team to decide on (e.g. any nonstandard libraries/tool you will use).
- **Demonstrate the project at the end of the term**
  - All team members must be present for this demonstration with the TA.
- **Complete peer-reviews individually**

Group Project

Tentative Project Schedule:

Component	Weight	Posted By *(at the latest)*	Due Date *(by 11:55PM)*
Requirements Documentation	5%	On OWL now	February 3rd
Project Management	4%	On OWL now	Ongoing, final submission April. 6th
Peer Review *(individual)*	2%	January 23rd	Ongoing, final submission April. 6th
Design Documentation	10%	February 6th	February 27th
Implementation and Delivery	20%	February 6th	Date of acceptance testing (Tentatively April 3rd to 6th)
Testing Documentation	9%	February 6th	Date of acceptance testing (Tentatively April 3rd to 6th)

Other Important Dates:

- Teams requests due by January 20th at midnight.
- Team lists posted on January 23rd.
- Last day to request a change in teams (only for good reason) is January 27th.
- Project demonstrations will be scheduled between April 3td – April 6th (inclusive).

Group Project

Late Penalty Policy:

- **For Group Components:**
  - Each group will be given 6 late coupons for the whole term.
  - Each project component deadline can be pushed back 1 day by using 1 late coupon.
  - A maximum of 3 late coupons can be used on one group component.
  - If no late coupons remain **OR** more than 3 days have passed since the original due date, a zero grade will be given for that component.

  - **Example 1:** If a due date is January 1st at 11:55PM and you submit on January 2nd at 5AM, this will require 1 late coupon.
  - **Example 2:** If a due date is January 1st at 11:55PM and you submit on January 4th at 11:54PM, this will require 3 late coupons.

Group Project

Late Penalty Policy:

- **For Individual Components:**
  - 25% (of the total marks) late penalty per day late.
  - Late coupons can **NOT** be used for individual components.
  - After 3 days late, a zero mark will be given for the component.

Group Project

Marking of Components

- After submitting a component, it will be marked by a teaching assistant and your groups grade and feedback will be returned within 3 weeks of the due date *(preferably sooner)*.
- Your individual grade on that component will be based on the group grade with adjustments made based on your performance within the group (based meeting minutes, peer reviews, repository logs, etc.).
- **At the end of the course**, adjustments may be made to the grade of group components based on the groups performance since the component was submitted and how the teams project evolved.

A Quick Word on Academic Dishonesty

- Groups are encouraged to discuss the project together and ask questions about the project on the course fourms.
- **No code or documentation should be shared between groups**. Only post code fragments (small bits of code and not whole files) when asking for help publicly.
- If you use code or documentation from another source (e.g. something you found online) it must be clearly indicated and correctly citied.
- **Only you and your group members can work on your project.** No tutors, friends who are not group members, outside services, etc.
- **Can not use pre-existing work from other courses**, past years, past attempts at this course, etc. in the project without written permission from the course instructor.

A Quick Word on Academic Dishonesty

- **Breaking these rules will result in a zero grade** for the project component in question for the whole group.
- Groups are expected to enforce these rules with their members.

Participation

10% of final grade.

Why participation?

Evidence shows active learning benefits students *(even in computer science courses):*

- J. J. McConnell, *"Active learning and its use in computer science"*, ACM SIGCSE Bulletin, vol. 28, no. SI, pp. 52-54, 1996.
- J. Pirker, M. Riffnaller-Schiefer, and C. Gutl, *"Motivational active learning: engaging university students in computer science education"*, in Proceedings of the 2014 conference on Innovation & technology in computer science education, pp. 297-302, ACM, 2014.

Computer Science and Software Engineering are highly collaborative field.

In the *"real world"* you will be expected to work with others on complex problems and communicate effectively.

Participation

How Will It Work?

- A points system will be used to track participation.
- Points can be earned in a number of ways, both inside and outside of class.
- The number of participation points you have at the end of the course will determine your participation grade.
- Each week will have at least 150 points from in-class activities.
- Points can also be earned by posting questions/answers on the course forums (in a meaningful/useful way, see syllabus for details), answering questions in-class, answer questions on the CS1.ca ASK tool, or posting resources/tutorials on the course forums.
- See the course syllabus for a complete list of ways to earn participation points.

Participation

How Will It be Graded?

Level	Grade *(out of 10%)*	Minimum Participation Points Required
0	0%	0
1	1%	300
2	2%	600
3	3%	900
4	4%	1000
5	5%	1200
6	6%	1500
7	7%	1800
8	8%	1975
9	9%	2150
10	10%	2200
11	10%+	2300

It should be possible to accumulate this many points from only in-class activities.

It should be possible to accumulate this many points by completing all in-class activities, earning 4 participation tickets, and making 4 high quality forum posts. Many other combinations are also possible.

Participation

How Will It be Graded?

Level	Grade *(out of 10%)*	Minimum Participation Points Required
0	0%	0
1	1%	300
2	2%	600
3	3%	900
4	4%	1000
5	5%	1200
6	6%	1500
7	7%	1800
8	8%	1975
9	9%	2150
10	10%	2200
11	10%+	2300

Going beyond 2300 points will grant a small bonus to your final grade. Up to 2%, depending on number of extra points past 2300. Final grade can not be over 100%.

Participation

- **Keep in mind that:**
  - You can make up for missed in-class group work by doing other participation point earning activities. However, this would not likely be enough for missing **all** classes.
  - Limited number of opportunities for participation tickets, but you can still get a full participation mark without them.
  - Best to focus on in-class group work and posting on the course forums *(in a meaningful way)*.

Final Exam

- Will be conducted **in-person** during the winter exam period (scheduled by the Office of the Registrar)
- **3 hours long**
- Will be **mixed format**, multiple-choice, short answer, and long answer questions
- Closed book but a **cheat sheet is allowed** (letter size, handwritten, two sided)
- Will be **comprehensive** and include all course content including but not limited to in-class lectures/tutorials, in-class activities, assigned readings, and content related to the project.

How to Get Help

Have a question/problem? Follow these steps (in order):

1. **Check course content:** notes, readings, tutorials, etc.
2. **Look at our OWL course forums** (maybe someone had the same problem)
3. **Try Google** or documentation for the software/library you are using.
4. **Post a question on our OWL course forums**
5. **E-mail a TA** (TA contact info will be posted on OWL once available)
6. **Ask a TA during a TA meeting**
7. **E-Mail the course instructor** (at dservos5@uwo.ca)
8. **Schedule an office hour with the instructor**

Email Contact

- Email contact with the course instructor is encouraged!
- I endeavor to reply to messages within 2 business days *(i.e. not on weekends or holidays)*
- General questions and inquiries about course content and assignments should be **posted to OWL forums**
- Questions that are specific to you *(e.g. accommodations, extension requests, etc.)* or your projects' content should be e-mailed to the course instructor.
- Email messages **must be sent from your university account.**
- Do **not** use 'Respond To' from any email or announcement message from OWL.
- When asking questions about your project or an error you are experiencing **make sure to include the error message** and **attach any relevant files** (or their location in your repository).
- **Include "CS2212" in the subject line of all e-mails.**
- **Try to keep e-mails short and to the point, but professional.**

Weekly Time Requirements

- **Lectures:** 3 Hours a week
- **Videos:** Occasionally some weeks will have a video or two to watch. No more than 2 hours in a given week.
- **Weekly Group Meeting:** Up to your group, about 20 minutes with TA
- **Readings:** 2 chapters on average (no more than 3 a week)
- **Recommend Homework:** 3-8 per chapter (ungraded/for studying)
- **Project Work:** Minimal work for first weeks, growing to significant near end of term (plan for this!)

Teaching Assistants

- Teaching assistants will mark project components and be available for consultation in-person for help with the team project.
- A teaching assistant will be assigned to each group for weekly meetings. Can also e-mail your assigned TA with questions.
- Teaching assistant names, contact information, and group assignments will be posted to OWL once available.

Pivot to Online Learning

In the hopefully unlikely event of having to pivot to online learning due to lockdowns (e.g. for a new COVID-19 wave):

- The course components will remain the same in terms of grade/weighting.
- Course material will be offered asynchronously (watch pre-recorded videos online).
- Participation activities will be posted online and use OWL forums rather than done in-class.
- Final exam will be online using OWL and Proctortrack (this means you will need a webcam and microphone).
- Weekly team meetings will be done online via Zoom (this means you need a webcam).
- Project demos will be done online via Zoom (yet again, you need a webcam).