

CIS*3260 F20 Software Design IV: Course Outline

Software Architecture and System Design

Lecturer:	Prof. Mark Wineberg
Office Hours:	After class, at the end of the scheduled Zoom lecture (a separate Zoom meeting may be scheduled, if a break is warranted)
Email:	mwineber@uoguelph.ca
Lectures:	Zoom sessions – Tues, Thurs 2:30pm to 3:50pm
Labs:	Zoom session: Tutorials – Monday 3:30pm to 6:20pm Zoom session: Q&A. – Friday 2:30pm to 5:20pm (usually to 3:20pm) <i>Lab time will be a mixture of practical tutorials (e.g. how to code in Ruby), common project meeting times, and TA hours. You may attend the Zoom sessions from either Lab, both of which will be recorded and posted</i>

Course Calendar Description

This course is a study of software architectures and system design methodologies. This will include advanced techniques for project management and experience evaluating software tools. The course has an applied focus and will involve software design and development experiences in teams, a literacy component, and the use of software development tools.

The Academic Calendars are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs:

<http://www.uoguelph.ca/registrar/calendars/index.cfm?index>

Course Topics

- OO Design
- Structural UML
- Structural Patterns
- Architectural Design
- Distributed Soft. Eng.
- Component-based Soft. Eng.
- Service-Oriented Arch.

Textbooks

Recommended

Head First Design Patterns
Eric Freeman, et.al.
O'Reilly Media, 2004/2014

Software Engineering (10th Ed)
Ian Sommerville
Addison-Wesley, 2015

Grading

[33%]	Group Project		
[6%]	RE	Requirements & Entity Model	(documents, walkthrough, DOE)
[12%]	DD	Detailed Design	(document, walkthrough, DOE)
[3%]	DU	Detailed Design Update	(document, DOE)
[10%]	IM	Implementation	(code, walkthrough, DOE)
[2%]	FB	Feedback on Design & Support	(eval of Design Team)
[27%]	Assignments		
[12%]	A1	Ruby	(code and written answers)
[12%]	A2	Rails & Distributed Architecture	(code and written answers)
[3%]	PR	Project Reflection	(written answers)
[10%]	Readings		
[5%]	CC1	Codeless Code P1	(written)
[5%]	CC2	Codeless Code P2	(written)
[30%]	Tests		
[10%]	MT	Midterm	("at home" through Courselink)
[20%]	F	Final	("at home" through Courselink)

*Your final grade is the weighted sum of all assessments shown above
(to pass the course you need an overall grade of 50% or above)*

Grading continued ...

Project Distribution of Effort

For the project, all individual grades x_j will be calculated using the formulae below, where x (out of 100%) is the the group grade, and m_j , (where $0 \leq m_j \leq 2$) is the group determined modifier

- | | | | |
|----|------------------|--|------------------------------------|
| if | $1 < m_j \leq 2$ | $x_j = (m_j - 1) * 50\% + (3 - m_j) * x / 2$ | (more work than the group average) |
| if | $m_j = 1$ | $x_j = x$ | (the group average amount of work) |
| if | $0 \leq m_j < 1$ | $x_j = x * (1 + m_j) / 2$ | (less work than the group average) |

Modifier m_j is settled on by the group at the time of each walkthrough and should reflect the relative amount of work each student in the group did on that particular deliverable. The total sum of all m_j must equal the number of members in the group. If it doesn't, the m_j values will be renormalized before the calculation is performed.

Late Policy

Assignments and Project components:

- There is a 1% late penalty (out of 100%) per every 2 hours up to two days after the due date, after which the assignment/component will be given a grade of zero.

Midterm:

- If you miss the midterm you may write a challenge midterm, which will be given a pass/fail grade. If you pass the challenge midterm, the Final will be worth 30% instead of 20%.

Accommodation of Religious Obligations

- If you are unable to meet an in-course requirement due to religious obligations, please email the course email address **within two weeks of the start of the semester** to make alternate arrangements.
- See the undergraduate calendar for information on Academic Accommodation of Religious Obligations: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml>

If You Cannot Meet a Course Requirement

- If you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course in writing, with your name, id#, and e-mail contact.
- See the undergraduate calendar for information on regulations and procedures for Academic Consideration: <http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Course Website

Course material, news, announcements, and grades will be regularly posted to the CIS*3260 Courselink Website, accessible from the uoguelph.ca front page. You are responsible for checking the site regularly.

- *Lecture Information:* The formal class notes and/or recorded Zoom sessions will be posted on the course website as soon as the instructor has time to make them available.
- *Labs and Tutorials:* Selected tutorial and lab materials and/or recorded Zoom sessions will be posted on the course website as soon as the instructor has time to make them available.
- *Assessments:* Assignments, project and descriptions readings material will be distributed through the course website. All assignments will be submitted via the course website. All project designs, and code will also be submitted through the course website

Class Delivery

Synchronous Lectures

- In this mode, Zoom sessions occur during class times, where lecture material are presented by the lecturer, often using screen share, and where the class will have the opportunity to ask questions live
- There is an asynchronous component to this style, as the sessions will be recorded and distributed through Courselink to be able to re-watch for clarification etc. or for those who live in areas with unstable Internet capabilities and thus who are not be able to attend live
- The course will start using this style, and may use this delivery mode to a greater or lesser degree as the semester progresses

Asynchronous Lectures

- An alternative mode of presentation, where a prerecorded lecture and/or summary material will be distributed in lieu of a live Zoom session presentation
- There is a synchronous component to this delivery mode, where Zoom sessions will be held for Q&A (which will also be recorded and distributed on Courselink)
 - Q&A can occur during a class or lab session, as announced when the asynchronous lecture is posted, and may or may not take up the entire time allotted to the session, depending on the questions asked
 - You are responsible for watching the original lecture prior to Q&A session so you can participate knowledgeably
- No sessions using this style of delivery are currently planned, but some topics may be better suited to this approach, so they may be scheduled in the future
- The course may use this delivery mode to a greater or lesser degree as the semester progresses

Labs

- Lab time will be a mixture of practical tutorials (e.g. how to code in Ruby), common project meeting times, and TA hours
- Tutorials can be presented either synchronously or asynchronously, depending on the topic.
- If a lab tutorial is given synchronously, it will be presented live during the Monday lab time, and the Friday Lab time will be used for a Q&A on the topic
 - Students may attend either or both Zoom sessions regardless of which lab they are signed up for

Walkthroughs

- Walkthroughs (project grading) will take place through Zoom sessions outside of the lecture and lab times during the week the project milestone is due
 - i.e. the milestone is handed in on Sunday, and the walkthroughs take place starting Monday
 - Walkthroughs typically are an hour long
- Your group will sign up for a single time slot during the week
 - Times will be posted and assigned using a first-come first-served basis
 - When the group is signing up, make sure it is a time that all (or at least most) of the group can attend

Recording of Materials

- All Zoom lectures and labs will be recorded and distributed through Courselink. These may include any audio/visual recordings by, and/or text messages from students who ask questions during the Zoom sessions.
- Walkthroughs, held through Zoom sessions, will also be recorded. Walkthroughs by a group will be released to all the members of the group, whether or not present at the Zoom meeting, but not to the class as a whole; unless all group members present during the Zoom meeting provide permission.
- Presentations made in relation to course work—including lectures and walkthroughs—cannot be recorded in any electronic media without the permission of the presenter, whether the instructor, a classmate or guest lecturer.
- Material recorded with permission, including Zoom lecture material, is restricted for the use of the course and may not be posted on any public space unless further permission is granted.

Timetable

Due	Lab	Classes	Classes	Lab	Due
Mon < 8:30 am	Mon	Tues	Wed	Thur	Fri < midnight
	Intro			<i>Proj Intro</i>	
	W1	<i>A1 Released</i>	<i>Proj Init</i>		
	W2				
<i>Indv: A1</i>	W3	<i>A2 Released</i>			
RQ	W4	Project requirements walkthrough			
	W5	<i>break</i>	<i>break</i>		
<i>Indv: A2</i>	W6				
	W7	<i>CC1 Released</i>		Midterm	
DD	W8	Project Design walkthrough			
<i>Indv: CC1</i>	W9	<i>CC2 Released</i>			DU
	W10				
<i>Indv: CC2</i>	W11				
IM	W12	Project implementation walkthrough			
	F	TBA			
					<i>Indv: PR</i>

Due	Lab	Classes	Classes	Lab	Due
Mon < 8:30 am	Mon	Tues	Wed	Thur	Fri < midnight
	Intro			<i>10-Sep</i>	
	W1	<i>14-Sep</i>	<i>15-Sep</i>		
	W2				
28-Sep	W3	<i>28-Sep</i>			
05-Oct	W4	Oct 5 - Oct 9			
	W5	<i>break</i>	<i>break</i>		
19-Oct	W6				
	W7	<i>26-Oct</i>		29-Oct	
02-Nov	W8	Nov 2 - Nov 6			
09-Nov	W9	<i>09-Nov</i>			13-Nov
	W10				
23-Nov	W11				
30-Nov	W12	Nov 30 - Dec 4			
	F	TBA			
					04-Dec

Academic Misconduct

Important Rules and Guidelines

- 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. All students who take a SOCS course must pass the *Academic Integrity Self-Test*.
- For educational purposes, instructors impose conditions on assignments that may limit students' permission to collaborate with others or to utilize external sources (including, but not limited to, software, data, images, text, etc.).
 - Any permitted utilization must be done *with proper references*.
- Aiding and abetting is a punishable offence; students must be careful not to help others commit offences by giving out solutions or providing to access computer accounts.
- 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.

Relevant Websites

- The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
<http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>
- The SOCS Academic Integrity Unit: <http://moodle.socs.uoguelph.ca/course/view.php?id=2>
Login with your central login credentials. The key to use is "imhonest".

Errata

Communication & Email Policy

- Major announcements will be posted to the course website and the discussion forums. **It is your responsibility to check the course website regularly.**
- As per university regulations, all students are required to check their <mail.uoguelph.ca> e-mail account regularly; e-mail is the official route of communication between the University and its students.

Instructor's Role and Responsibility to Students

- The instructor's role is to develop and deliver course material in ways that facilitate learning for a variety of students.
- Selected notes will be made available to students on the course website but are not intended to be stand-alone. During lectures, the instructor will expand and explain the content of notes and provide example problems that supplement posted notes. ← *repeated for emphasis*
- Scheduled classes, labs and group walk-throughs (*scheduled by mutual agreement outside of class/lab times*) will be the principal venue to provide information and general feedback for tests and assignments.

Students' Learning Responsibilities

- Students are expected to take advantage of the learning opportunities provided during lectures, labs and help sessions.
- Students, especially those having difficulty with the course content, should also make use of other resources recommended by the instructor.
- Students who fall behind due to illness, work, or extra-curricular activities are advised to keep the instructor informed as early as possible. This will allow the instructor to recommend extra resources in a timely manner and/or provide consideration if appropriate.