UNIVERSITY of GUELPH

CIS*4250 Software Design V

Winter 2021   Section(s): C01   School of Computer Science Credit Weight: 0.50

Course Details

Calendar Description

This is a capstone course which applies the knowledge gained from the previous Software Design courses to a large team project. 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.

Pre-Requisites: CIS*2750, CIS*3260

Course Description

Students will work as a team to design and create software systems based on the instructor's specifications and guidelines, keeping each other on track, setting and meeting milestones, and choosing appropriate software (open source libraries to assist development, version control, documentation, etc.).

Timetable

The lab periods will be used to present project requirements and for meetings between the student teams and the instructor. Labs will also be used for demos, sprint retrospectives, and code reviews. The instructor will schedule 27 minute retrospectives with teams during scheduled lab times (Tuesdays, Thursdays 8:30AM to 9:50AM, 1:00PM to 2:20PM).

Final Exam

No final exam.

Instructional Support

Instructional Support Team

Instructor: Greg Klotz, Ph.D.

Email: cis4250@socs.uoguelph.ca

Learning Resources

Required Resources

CourseLink (Website)

https://courselink.uoguelph.ca

https://moodle.socs.uoguelph.ca

Meeting information: all meeting schedules, including dates, times, and teams will be posted online.

Evaluation details: the details on all evaluation components for this course will be made available on the course website.

Learning Outcomes

By the end of this course, you should be able to:

1. Design a software system based on the analysis of desired requirements, available technologies, and timeline constraints.
2. Design a set of project milestones for a small software development team using software engineering and project management practices.
3. Develop a complete software system in a team environment.
4. Create and deliver software releases according to the designed milestone schedule and requirement specifications.
5. Employ collaborative tools to manage the software development lifecycle.

Teaching and Learning Activities

Assessments

Marking Schemes & Distributions

Teams will use https://gitlab.socs.uoguelph.ca to plan the sprint and work on deliverables. Code, designs, plans, etc. will be added to the team project and tracked with a burndown chart and comments.

Assessment Details

9 One Week Long Sprints (100%)

Teams will work together creating deliverables for 9 sprints. Sprints start at 9:00AM Monday morning, when the sprint goals for that week are posted on CourseLink. Sprints end one week later, at 12PM Monday morning. The sprint is frozen on gitlab.socs.uoguelph.ca by 12:00PM Monday, and a new sprint is started, on a new branch. Any changes to the sprint after this time will receive significant grade penalties. The instructor or TA will meet with each team for a sprint retrospective in the week the sprint ended to discuss design decisions, do code reviews, and discuss each person's work during the sprint. Graded sprints will be held on weeks starting Jan 15, Jan 22, Jan 29, Feb 5, Feb 26, March 4, March 11, March 18, March 25; and graded the week after during sprint retrospective.

- If a team would like, **one** sprint grade can be dropped from the final grade calculation. This is only an option for one of the January or February sprints. It is not an option for the March sprints. **To request to drop a sprint grade make the request within 24 hours of receiving the grade by email to cis4250@socs.uoguelph.ca All team members have to be copied on the email, and the majority of the team needs to agree with the request.**
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- Grading for the sprint will be assigned using University of Guelph grading policies
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- For example, if the sprint task for the week is to complete task A and the team completes the bare minimum of task A and it sort of works, the grade will be a D (53 to 56%). **This is grade X.** The team can increase the grade by adding extra features to A, add great test coverage for their code, ensure their code is well documented, the project is well documented, code works cross platform (Windows, Mac, Linux), easy to install, etc.
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- At the start of the sprint, each team will create tasks to complete for the week with assigned weights on Gitlab. A weight of 2 means that for most 4th year SENG students

that task requires one hour of work. **Team members should aim to complete 12 weights of work (6 hours) each week. Sprint planning, team meetings, and research are not part of the 6 hours. These 6 hours need to result in completed work on gitlab.socs: code, tests, design, scripts, configuration. This is Software Design 5. If your tasks are not averaging about 50% software development over multiple weeks you will lose grades.** Tasks should be broken up into reasonably small tasks, at most weight 1 (30 minutes of work), so all team members have a chance to work on a variety of tasks. All team members need to attend team retrospectives and be prepared to discuss their work. **The weight of completed tasks by a student divided by 12 is multiplier Y. If there is no evidence of completed work for you personally on gitlab.socs.uoguelph.ca your sprint grade will be 0.**

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- **A student's sprint grade is: the team's sprint grade X * multiplier Y.**
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- For example, if the team had a great sprint and the team sprint grade is 10/10, and the student completed 6 weights of tasks (3 hours), their grade is 10 * (6/12), so 5. Another student on the team who completed 12 weights has a grade 10 * (12/12), so 10.
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- **Unless a student is making up approved work missed due to illness the maximum Y multiplier is 1.0. If a student completes 20 weights of tasks during that sprint their grade is still 10, not 16.5.** If your team is repeatedly in this situation it suggests the team is not working well together and a new team will be assigned.
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- **If a student does not participate in their team retrospective their sprint grade will be adjusted: grade as above * 0.6.** Using the example above, 10 * (12/12) * 0.6 = 6.
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- **You will also lose grades for being late for the retrospective.**
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- At the instructor's or TAs discretion grades may also be lost during sprint retrospective for presenting badly organized or commented code, designs, etc. or for not being prepared for the presentation and discussion.
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- The instructor or TA can also change task weightings at any time, even retrospectively. If a student completes a task with weight 4 (2 hour task) but most 3rd year Computing students could complete it in half an hour, it will be re-weighted to 1 even if the student spent two hours on it. (I don't expect this to actually happen often, but you need to assign task weightings appropriately.) All completed weighted tasks must have deliverables attached on GitLab: code, documentation, readme.txt, research notes, meeting minutes, etc.
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- **The team lead for the week is responsible for ensuring tasks are weighted properly.**
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- Only completed tasks are counted. If you start a task weight 2 but don't complete it by the end of the sprint that is assigned a weight of 0, not some fraction of 2. Completed tasks must have tangible deliverables on git.socs. Code, a design, research notes, meeting notes, documentation, etc. **If there is no evidence of completed work for you**

==personally on gitlab.socs.uoguelph.ca your sprint grade is 0.== Pair programming is encouraged but take turns "driving" and committing deliverables.

- **Individual grades will also be impacted by peer assessment. 40% of the grade depends on peer assessment as a second check on work completed, to ensure the work completed is supporting the sprint. This does not stack on top of the completed weights deduction. For example, if the team grade for the sprint is 10/10, you completed 6/12 weights (3 hours), and your team members evaluate your work as 2/4, your sprint grade is still 5/10. Not 2.5/10. In a situation where you complete 12/12 weights but your team members evaluate your work as 0/4 (it was work of some kind, but not contributing much to the sprint), your grade will be 6/10.**

Course Statements

Teams

Teams will be assigned by the instructor. Teams may be changed at any time by the instructor.

Making up work missed due to illness

If a student misses course work due to illness or other academic consideration reasons they will be graded for missed work as usual. For example, if a student does not participate in Sprint 3 their grade multiplier will be 0, and they will get 0 on that sprint. After discussion with the team and instructor, the student can take on extra work in Sprints 4, 5, and 6 to increase their grade multiplier up to 1.3 for those sprints. ==You need to tell your team and the instructor that you will be missing work as soon as possible.==

Task weights during the sprint

Teams will create tasks and assign weights to them at the start of the sprint. A task with weight 1 means that most 4th year SENG students would need 30 minutes to complete that task. The instructor reserves the right to change task weights at any time, even after the sprint is over. For example, if a student assigns a weight of 2 (1 hours) for a task that most 4th year SENG students can do in 30 minutes, that task will be re-weighted to 1 even if the student spent 2 hours working on it.

University Statements

Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

For Guelph students, information can be found on the SAS website
https://www.uoguelph.ca/sas

Academic Integrity

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 encourages academic integrity. 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 or faculty advisor.

Undergraduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Graduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

Illness

The University will not normally require verification of illness (doctor's notes). However, requests for Academic Consideration may still require medical documentation as appropriate.