CIS 4250 – Software Design V (Winter 2023), 0.50 credits

Prerequisites: CIS 2750, CIS 3260

Lectures: none
Laboratories: Tuesdays/Thursdays: 8:30-11:20am
(Note: each group will be given a scheduled mandatory meeting/demo time during lab times; attendance during the whole 6 hours is not required)
Final Exam: None.

Instructor: Prof. S. Scott, Associate Professor, School of Computer Science
Office: REYN 3308; Email: stacey.scott@uoguelph.ca
Office hours: Mondays 3-4pm (in person; mask required), Tuesdays 2:30-3:30pm (virtual)

Teaching Assistant: Surajpratap Goraya
Email: cis4250@socs.uoguelph.ca

Contact: Use the cis4250@socs.uoguelph.ca email or post to the *"CIS 4250 Course Questions" Discussion board* on CourseLink for project questions. For urgent or personal issues, email Prof. Scott directly or ask during Office Hours (see above for times).

Course Delivery Notes:
Labs will conducted in-person, with necessary shifts to virtual as needed due to health/safety disruptions.

- **Lab participation is mandatory.** Groups will be assigned a regular weekly timeslot to meet with the instructional team for progress meetings and Sprint Demos (see project manual for deliverable deadlines). Each group will also be assigned one of four lab session times during which they will have priority access to the lab (scheduled meeting times will be during your session time.) This will provide a shared time and space for groups to meet with the instructional team and work on course deliverables.
- **Contact Prof. Scott with accommodation requests within FIRST week of class.**

Course Website: http://courselink.uoguelph.ca (Login with Central login ID and password)
The course website will be used to provide:

- ***informational materials*** (e.g., project description, rubrics, resources, handouts, course updates)
- ***electronic drop boxes*** for non-programming course deliverable submissions
- ***course discussion boards*** for asking questions and discussing issues related to course material

Required Lab Manual:

- Kniberg, H. (2014). Scrum and XP from the Trenches, 2nd edition. Stockholm: C4Media. Free Downloadable e-Book available at https://www.infoq.com/minibooks/scrum-xp-from-the-trenches-2.
- Scott, S.D. (2023). CIS*4250 Team Project Manual: Extending an Open Source Software Application using the "Scrum" Agile Methodology. (available on course website on CourseLink)

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.
Prerequisites: CIS 2570, CIS 3260

Course Objectives:
Students will work in a team of 4-5 members to create a well-designed and validated software application 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.).

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

a. Critical Thinking:
   - *Select* and *Use* suitable software engineering tools and methods to produce a complete software system that meets user needs.
   - *Select* and *Use* suitable testing methods for verifying and validating a software project;
   - *Identify* sources of risk in software projects, and *Select* and *Use* mitigation strategies to develop a working, validated software system based available technologies, resources, and timeline constraints.
b. (Information / Technical / Visual) Literacy:
   - *Plan* and *execute* software engineering processes that effectively use available technology and tools
   - *Translate* software requirements into well-documented software.
   - *Produce* and *Interpret* software engineering diagrams to represent various stages of a software system and software project.
c. (Written/Oral) Communication:
   - *Produce* suitable documentation for design, development, and testing of a complex software project.
   - *Select* and *Use* suitable language and visuals to communicate project plans, progress, and challenges.
d. Professional and Ethical Behaviour (Teamwork & Leadership):
   - *Select* and *Use* suitable project management practices for a modern software engineering project.
   - *Select* and *Use* suitable team behaviours and collaboration and *Evaluate* your contributions.

Grading Scheme:
The following table describes the grading scheme, and the corresponding learning objective. See the Project Manual for more details of each Project deliverable.

			Learning Objectives			
	Marking Scheme		**a**	**b**	**c**	**d**
Evaluated through:	**Indiv.**	**Team**	Critical Thinking	Info/Tech/Visual Literacy	Written/Oral Communication	Teamwork & Leadership
Team Contract & Project Proposal		*5%*	x	x		x
Initial System Design & Backlog		*20%*	x	x	x	x
Project Milestone 1		*10%*	x	x	x	x
Project Milestone 2		*10%*	x	x	x	x
Project Milestone 3		*10%*	x	x	x	x
Final Project Demo + Application		*20%*	x	x	x	x
Project Post-Mortem	*4%*	*5%*	x	x	x	x
Accountability Reports	*6%*		x	x	x	x
Peer Assessments (2)	*10%*		x			x
Course Total	**20%**	**80%***				

***NOTE: Due to the significant group work required for the team deliverables, the instructor reserves the right to apply a fraction of the grade to an individual group member without sufficient evidence of contribution to the group effort. See Coursework Policies below.**

Design Project

A main learning vehicle for this course is a hands-on, team-based software engineering project involving the **extension** of an existing software application (selected by each team). Project deliverables and related deadlines are detailed in the ***CIS*4250 Team Project Manual: Extending an Open Source Software Application using the "Scrum" Agile Methodology***, posted on CourseLink. The main goal of the project is for students to demonstrate their knowledge of modern software design and software engineering processes through the use of the Scrum agile software engineering methodology.

Estimated Weekly Course Commitment (10-12 hours per week for this 0.5 credit course):

- 1.5 + 1-2 hours labs + lab preparation (this may include in-lab activities related to your design project)
- 7-9 hours independent design project work

University of Guelph expects students to spend 10-12 hours per week on a 0.5 credit course. This time commitment represents student workload rather than contact hours. In CIS 4250, the key learning vehicle is the design project and related activities. The weekly lab times will be primarily used for regular progress and feedback meetings and scheduled project demos with the instructional team. Thus, **LABS ARE MANDATORY. Individual accountability marks** will be given to assess **individual reflection, learning, and contribution to group deliverables**.

Policies on Required Coursework:

Accommodation:

- If you are unable to meet a course requirement due to medical, psychological, or compassionate reasons, please make an appointment to meet with Prof. Scott. Please see below for specific details and consult the undergraduate calendar for information on regulations and procedures for Academic Consideration: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml
- If you are unable to meet a course requirement due to religious obligations, please email Prof. Scott **within two weeks of the start of term** to make alternative arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations: http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml

Late or Missed Deliverables:

- **0%** will be given for any late or missed assignments or deliverables. **No extensions** will be given after a submission date.

Marking of Team-Based Deliverables:

- By default, marks for all team-based deliverables will be applied to all group members. However, the **instructor reserves the right to assign individual students a fraction of the total group mark** on any specific team-based deliverable without sufficient evidence of that student's contribution to the group effort. The **onus is on each individual student to provide evidence of their individual contribution** to the team effort. The instructor reserves the right to apply fractional grading **retroactively at the end of the term** to one or more team deliverables if **individual accountability reports**, **peer assessments**, or **team deliverables** lack sufficient evidence of contribution to team-based deliverables.
- If a team feels that lack of effort by one or more group members is negatively impacting the group's ability to meet the progress or outcome expectations for the course, the situation **MUST be identified to the course instructor or TAs PRIOR to any impacted deliverable** to be considered for accommodation in deliverable grading. Otherwise, default grading criteria will be applied (e.g., project progress and outcomes will be assessed on the basis of a full team effort). Group members must submit a written re-

quest for accommodation, PRIOR to the deliverable deadline, detailing the situation. Note that submission of an accommodation request is not in and of itself approval.

- **It is the responsibility of ALL team members to ensure the accuracy and quality of all aspects of submitted team-based deliverables**. Therefore, any academic integrity offences arising from a team-based deliverable will impact ALL group members.

Re-grading of Marked Components:

- Any request for re-grading of a marked course component must be **submitted in writing no later than 1 week** following return of the marked component. A detailed rational for the request must be included in the written request. The instructor reserves the right to re-grade the entire deliverable component, not just the requested aspect.

Calculation of Final Grade / Failed Individual Portion of the Course:
Your final grade is the weighted sum of all marked coursework as shown in the Grading Scheme table on page 2, unless: a) you obtain **less than 50% on the combined average of the individual coursework components** (Individual Accountability Reports, Peer Assessments), in which case your final grade will be your combined mark for these individual course components, to a maximum of 45%.

In summary, your final grade will be calculated as follows:

if (you fail the individual portion of the course)
then final grade = (weighted sum of individual components in Grading Scheme) / 55 * 100, to maximum of 45%
// note individual components = Individual Accountability Reports, Peer Assessments

else // (you passed the individual portion of the course)
then final grade = weighted sum of all components in Grading Scheme

Communications Policy:
All course communications should follow the following guidelines:

- As per university regulations, all students are **required to check their <uoguelph.ca> e-mail account regularly**. E-mail is the official route of communication between the University and its students.
- **Always use your uoguelph.ca account** when emailing Prof. Scott or the TAs (i.e. when emailing cis4250@socs.uoguelph.ca). This provides an authentic email address. Also, always **include the course number (CIS 4250)** along with a relevant topic in the subject line.
- Address your email appropriately (i.e. “Dear Prof. Scott / Professor / Surajpratap ...”)
- Sign your email with your first and last name, and your student number. If you have a nickname, include that also, e.g., Yu-Ling (Betty) Chang.
- Use **professional, respectful language**. Email containing crude or coarse language will not be answered.
- Allow 24-48 hours for a response to your email or questions posted to the course Discussion Boards.
- Email should be used for brief questions that can be answered quickly. Please use office hours, or a scheduled appointment with Prof. Scott or a TA for detailed discussions.

Roles, Responsibilities, and Expected Behaviour

Recording and sharing of course materials
Presentations which are made in relation to course work—including lectures—**cannot be recorded or copied without the permission of the presenter (instructor, classmate, or guest lecturer); see below for implicit permission given for recording of voluntary discussion participation**. Material recorded with permission is restricted to use for that course unless further permission is granted.

Do not redistribute recorded interactive discussions that involve any member of our course (instructor, your TAs, your classmates). This includes advising times and question and answer sessions with the instructor/TAs.

Online activities such as advising times, question and answer sessions, and interactive lectures may be recorded by the instructor or TAs and posted to CourseLink. **By participating in these course activities you are agreeing that your participation in these activities can be used in this manner.**

Instructional Team's Role and Responsibility to Students
The instructional team's (instructor and TAs) 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 and labs, the instructional team will expand and explain the content of notes and provide example problems that supplement posted notes. Scheduled classes and labs will be the principal venue to provide information and feedback for exams and assignments. The instructional team is also responsible for providing a safe and inclusive learning environment. See Code of Conduct below.

Students' Learning Responsibilities
Students are expected to take advantage of the learning opportunities provided during lectures, labs, and advising times. 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.

Students are expected to keep copies of all course deliverables they have submitted. Students may be asked to resubmit deliverables at a later time.

Mental Health
University of Guelph course instructors and student services cooperate to assist in helping students manage course and life stressors. Help is also available through counselling services. Please see the Mental Health Resources page for details: https://wellness.uoguelph.ca/counselling/mental-health-resources.

Accessibility
The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services (SAS) as soon as possible.
For more information, contact SAS at 519-824-4120 ext. 56208 or visit the SAS website.

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

Copies of out-of-class assignments
Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

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

Ethical Behaviour[1]
Ethical conduct in the (physical or virtual) classroom and in academic work are critical to a healthy learning environment. Ethical conduct in all areas of University work is taken very seriously at the University of Guelph.

Code of Conduct
Our learning environment must be a friendly, safe, and welcoming environment for all, regardless of ethnicity, gender, sexual orientation, ability, socioeconomic status, and religion (or lack thereof). As we wish to facilitate and encourage the fullest participation from everyone, this code of conduct outlines the expectations for all participants (including the instructor and other staff). This code of conduct is aligned with the University of Guelph's policy on Non-Academic Misconduct (https://www.uoguelph.ca/secretariat/office-services/student-judicial-services/non-academic-misconduct/policy-non-academic-misconduct).

Expected Behaviour
- Participate in an authentic and active way. In doing so, you contribute to the health and value of this community.
- Exercise consideration and respect in your speech and actions.
- Attempt collaboration before conflict.
- Refrain from demeaning, discriminatory, or harassing behaviour and speech.
- Be mindful of your surroundings and of your fellow participants. Alert community leaders (for example, your instructor) if you notice a dangerous situation, someone in distress, or violations of this Code of Conduct, even if they seem inconsequential.

Citizenship and Participation
Communities mirror the societies in which they exist and positive action is essential to counteract the many forms of inequality and abuses of power that exist in society. If you see someone who is making an extra effort to ensure our community is welcoming, friendly, and encourages all participants to contribute to the fullest extent, we want to know.

Unacceptable Behaviour
Unacceptable behaviours include: intimidating, harassing, abusive, discriminatory, derogatory or demeaning speech or actions by any participant in our community, either in person, online, at any related events, or in one-on-one communications carried out in the context of community business. **Harassment includes**: harmful or prejudicial verbal or written comments related to race, religion, disability, gender, sexual orientation; inappropriate use of nudity and/or sexual images in public spaces (including computer labs and presentation slides); deliberate intimidation, stalking or following; harassing photography or recording; sustained disruption of talks or other events; inappropriate physical contact, and unwelcome sexual attention.

[1] This "Ethical Behaviour" section is based on content developed by SoCS's professor Dr. A. Hamilton-Wright, which was in turn developed based on the citizen code of conduct available via http://citizencodeofconduct.org, and is distributed under a Creative Commons Attribution-ShareAlike license (http://creativecommons.org/licenses/by-sa/3.0/).

Consequences of Unacceptable Behaviour
Unacceptable behaviour from any community member, including the course instructor and those members with decision-making authority, will not be tolerated. **Anyone asked to stop unacceptable behaviour is expected to comply immediately.** If a community member engages in unacceptable behaviour, action will be taken to ensure that such behaviour ends, beginning with action on the part of the course instructor, and escalating if necessary. Additional information on University policy regarding harassment, conduct and human rights is available at the following web page: https://www.uoguelph.ca/diversity-human-rights/

If You Witness or Are Subject to Unacceptable Behaviour
If you are subject to or witness unacceptable behaviour, or have any other concerns, **please notify the course instructor as soon as possible**. If you feel that the course instructor cannot or will not provide remedy for the situation, please contact any of these alternate resources:

- Associate Director (Undergraduate) <ugraddir@socs.uoguelph.ca>
- Director of the School <director@socs.uoguelph.ca>
- Associate Dean (Academic) <kgordon@uoguelph.ca>
- Office of Diversity and Human Rights <dhrinfo@uoguelph.ca> or extension 53000
- Campus Community Police at extension 52245

Academic Integrity & Academic Misconduct
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. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

It is **your responsibility to read and be familiar with the academic regulations** of the University as presented in the Calendar. Ensure you have a complete understanding of the concepts as described in the "Academic Misconduct" subsection within Section VIII "Undergraduate Degree Regulations and Procedures" in the Calendar: https://calendar.uoguelph.ca/undergraduate-calendar/undergraduate-degree-regulations-procedures. It is your responsibility to accurately and clearly indicate the work of **any and all contributing people**, including yourself, in all presented and submitted materials. By handing in any work for this course, unless you have specifically identified any other authorship, **you are claiming that the sole authorship is your own**.

Please note: Whether or not you intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse you from responsibility for verifying the academic integrity of your work before submitting it – this includes submitted team-based deliverables. If you are in any doubt as to whether an action on your / your team's part could be construed as an academic offence you should consult with your course instructor.