UNIVERSITY of GUELPH

School of Computer Science
CIS*4450 Advanced Object-Oriented Programming
Winter 2020

We acknowledge that the University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer our respect to our Anishinaabe, Haudenosaunee and Métis neighbours as we strive to strengthen our relationships with them. Today, this gathering place is home to many First Nations, Métis and Inuit peoples and acknowledging them reminds us of our important connection to this land where we learn and work.

CIS*4450 is a .5 credit course Prerequisites: Instructor Permission
Instructor: Judi McCuaig Office: 2204 Reynolds Email: cis4450@socs.uoguelph.ca Office hours: by appointment at judimccuaig.youcanbook.me
Teaching Assistant: Tyler Laforet Email: cis4450@socs.uoguelph.ca Office Hours: appointments made via course website
Lecture: Tuesday/Thursday 1:00 PM Location: McKinnon 236

Description

CIS*4450 is a special topics course which means that the content and learning outcomes change for each offering. This offering of the course will explore advanced techniques in object-oriented programming including the SOLID principles, clean code, continuous integration, linters and testing, and code smells. Design patterns and the UML will also be discussed in the context of software examples.
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:

List of Topics (presentation order may change)

- Object Oriented Fundamentals
- SOLID principles
- Linters, CI/CD, Clean Code
- Functions, Objects and Error Handling
- Unit tests and Junit
- Classes, Cohesion and Coupling
- Polymorphism, Inheritance, Interfaces
- Boundaries and Design by Contract
- Code Smells
- Refactoring
- OO design of RESTFUL interfaces
- Concurrency

Learning Outcomes

- Communicate object-oriented concepts to peers through active discussion and creation of multi-media artifacts
- Demonstrate advanced object-oriented programming knowledge through software development.
- Evaluate object-oriented programming languages given a context for application.
- Identify a suitable toolset for design through deployment, given an application type and target platform.

Learning Activities

Much of the lecture time will be devoted to discussion groups and cooperative learning activities. Come to every lecture prepared with a portable computing device as well as paper and writing instruments for illustrating discussion points.

Every Tuesday lecture will include some sort of active learning activity that must be completed during lecture. Often these activities will require some pre-class preparation on your part. Each Tuesday activity after the first lecture is worth 2% of your final grade. The first lecture will include a quiz that is worth 1% of your grade.

Assessment

	Due Date	Weight
In-class learning activities (~2%/week)	Every Tuesday	25%
Project Proposal	January 23, 11:59 pm	0†
Project Milestone 1:	February 7, 11:59 pm	20%
Milestone 1 Peer Review	February 14, 11:59 pm	5%
Project Milestone 2:	March 6, 11:59 pm	20%
Milestone 2 Peer Review	March 13, 11:59 pm	5%
Project Milestone 3	April 3, 11:59 pm	20%
Milestone 3 Peer Review	April 10, 11:59 pm	5%

† proposal is worth 0 marks but must be approved before any project work will be assigned a grade.

Milestone Submission:
There is no grace period for milestone submissions or for peer reviews. Instructions for submission and details about the apportioning of marks between peer review and instructor will be provided with the project description.

Regrades: Students may request a regrade only if the grader has made an error. The original submission will be entirely regraded, and a new mark will be assigned. It is possible for a mark to go down, go up, or remain unchanged as a result of a regrade. Students must request a regrade via email within 5 calendar days of receiving original grade. Regraded marks are final.

Missed Assessments:
If you are unable to meet an in-course requirement due to medical, psychological, or compassionate reasons, please make an appointment to discuss with Judi. Please see the calendar for specific details about regulations and procedures for Academic Consideration

Late work will not be graded regardless of the reason for lateness. If you miss an assessment and have documentation to support Academic Consideration you may write a make-up quiz to replace the weight of the

missed work.

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 regulations and procedures for Academic Accommodation of Religious Obligations:

Communication and Resource Locations

- Major Announcements will be emailed to the class via the announcement forum on the course website at moodle.socs.uoguelph.ca.
    - ensure that you have configured your Moodle profile to send individual emails so that you get these announcements.
- The course discussion forum is hosted on Microsoft teams. You have been added to the team and may also use that platform for individual or small group discussions. Log in with your central login credentials
    - Ensure that you install the teams app on your devices and configure them so that you get notifications
- 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.

Online Resource Materials

- Learning resources, and grades will be posted to the course website
- Course notes will be maintained in a git repository and will require a jupyter installation. https://gitlab.socs.uoguelph.ca/cis4450w20/coursenotes
    - Fork the repository and follow the instructions in the README for setting up jupyter and for setting the repository to mirror the origin automatically

Printed Resource Materials

- Clean Code: A handbook of Agile Software Craftsmanship by Robert C. Martin
- The Object-Oriented Thought Process by Matt Weisfeld

Redistribution of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, classmate or guest lecturer. Material recorded with permission is restricted to use for that course and may not be posted on any public space unless further permission is granted.

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. Notes will be made available to students on the course website but are not intended to be stand-alone. The online discussions, assignments, labs, and the e-textbook are all important components of this course.

Students' Learning Responsibilities

Students are expected to take advantage of the learning opportunities provided during lectures 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.

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 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. Instructors may use automated tools to detect possible cases of academic misconduct. 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.
The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
The SOCS Academic Integrity Unit:

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.
Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day. More information: www.uoguelph.ca/sas

Children in Class

All exclusively breastfeeding babies are welcome in class whenever necessary. I understand that childcare can sometimes be disrupted, and would rather you bring a quiet, occupied child to class than have you skip class. Bringing your child to class should not be a long-term childcare solution but is an acceptable emergency action. If you do bring your child to class, please sit near an exit so that you can step outside without disrupting your peers if your little one needs extra attention.

Drop Date

Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.