Carleton University
School of Computer Science
COMP 3004A: Object-Oriented Software Engineering
Winter 2020
Last updated on December 22nd, 2020

Class Schedule
Lectures: Wednesday and Friday at 11:35 AT102
Winter Break: February 17-21 (no office/TA hours)
Office/TA hours will be held starting the week of January 13th and run until March 27th inclusively with some exclusions
Note that the last full week of class will be dedicated to project demos (no lecture and no office hours).

Instructor Info
Vojislav D Radonjic room: 5356 HP
demail: vojislavradonjic AT cmail.carleton.ca
office hours: TBD or by email appointment

Course Website
cuLearn will be the primary course website.

Textbook:
No single textbook. Course material will be posted on cuLearn.

TAs: names, emails, office hours
Will be posted in 3004 announcements on cuLearn

Short Course Description
This course teaches an agile approach to team-based object-oriented software development (OOSD). More precisely, we use a test-driven repository-based approach to software development. The use of design patterns guides how we organize object-oriented code for ease of change. We will also consider the role of models within this proposed approach to OOSD.

Topics Covered
Among topics, we will cover: Software Development Processes, ArchiMate, the Agile manifesto, Test-Driven Development (TDD), a selection of the design patterns of Gamma et al. (Go4), a subset of the Unified Modeling Language (UML 2.0), and computer ethics. Time permitting, we will also discuss: more advanced features of UML, design by contracts and death march projects.

Learning Objectives
- Understand the advantages of agile development over a waterfall process
- Understand the basics of TDD
- Understand a representative subset of the Gang of Four (Go4) design patterns
- Know the essentials of ArchiMate and UML 2.0
- Gain experience with the team-based development (models, code and testing)
- Gain experience with TDD, continuous integration and Go4 patterns.

Prerequisites
The student is assumed to have taken COMP 2401, COMP 2404 and COMP 2406. In addition to programming, you must be able to structure, write, and present quality documents in clear and concise English.

Evaluation
Students will be evaluated according to the following components:

1) Two individual assignments at 10% each
   - Assignment 1: Using a ArchiMate to model system requirements and
   - Assignment 2: design a system with OO design patterns

2) Team Project: (Iteration 1: 20% Iteration 2: 30%)
   - The weight of each iteration is fixed and will NOT change.
   - It is expected you identify each submission to the repository with its contributor(s). You must grant access to your repository to the TA assigned to your team as soon as this information is posted.
   - As will be explained in class, continuous integration is essential.
   - You can propose a team of 4 members
   - Teams will be posted to cuLearn
   - You receive individual marks for each of the two iterations. These marks are based on your identified repository contributions, peer evaluations and TA correction grids.
   - A lecture will be devoted early in the term to team issues.
   - Collaboration on team projects is restricted to members of the same team.
   - Inter-team collaboration is strictly disallowed. Any form of plagiarism will be reported to the Dean of the Faculty.

3) Open-book 3 hour final exam: 30%
   - Date and time to be announced by the Scheduling Office
   - The exam will address material presented in class, which covers much more than what is directly required by the project.
   - There is no supplemental or grade raising exam in this course.
Some additional remarks for the project:

1) Due dates:
   - *No extensions are possible for any* of the deliverables and late submissions are not accepted: you must submit what you have by the posted deadline

2) Weekly workload:
   - It is expected you devote approximately 9 hours per week to this course. It is highly undesirable to *not* sufficiently contribute during a week as this almost inevitably slows down the whole team. Any poor or non-contributor (to be identified via team progress reports and analysis of submissions, and possibly via peer evaluations) will receive a penalty each week s/he is deemed to contribute insufficiently, unless a) the team is notified immediately of any absence and b) a medical certificate is provided to the instructor immediately upon returning to school.
   - Should a student not be ill but know that s/he will not be able to contribute approximately 9 hours in a week, s/he should immediately notify his/her teammates, the team’s assigned TA and the instructor. That student will be expected to contribute the missing hours as *additional* hours in the following one or 2 weeks.
   - Each week, each team (*not* each team member) must submit to culearn (i.e., not by email) a *single* team report that states for each team member:
     - the number of hours spent on the project since the last report
     - what that team member has achieved wrt the requirements/ user stories
     - what methods and tests s/he has submitted to the repository (so this can be actually cross-checked against the actual submission history of the project)

3) Team management:
   - A fundamental learning objective of this course is teamwork. *Do not ask to work alone.* Do expect heated discussions if not conflicts in the process of working in a team. Team issues will be briefly discussed in class.
   - Should your team shrink, through withdrawals, to two students, do proceed as a team but contact the instructor immediately to obtain reduced requirements for the iteration. Should you be left alone, again immediately contact the instructor. Depending on how far we are in an iteration, you will either be reassigned to another team OR obtain reduced requirements for the current iteration.

About passing the course:
   - In order to get a D- or better in this course:
     - The total of the marks you accumulate for the individual assignment *and* the two iterations must be superior to 35 (out of 70)
     - The mark you obtain on the final, out of 30, must be judged to be a passing grade by the instructor. Please note that what constitutes a passing grade for the final is *not necessarily* 15 out of 30 but is instead determined by the instructor in light of the performance of all those who attend the final exam.
Undergraduate Academic Advisor
The undergraduate advisor for the School of Computer Science is available in Room 5302C HP, by telephone at 520-2600, ext. 4364 or by email at undergraduate_advisor@scs.carleton.ca. The advisor can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisor will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and the Writing Tutorial Services.

Science Student Success Centre (SSSC)
The Science Student Success Centre is a central advising unit for students in Science courses. We help students achieve their goals by providing access to resources, workshops and activities that enhance their academic and study skills, and help them make key connections with their peers. Mentors can help you customize an individual study plan which includes weekly and semester work or study schedules, and also help when you need information on developing a new study strategy, obtaining summer job opportunities, or clarifying ideas and concepts to better understand and cope with new course content. Science mentors can help you learn how to learn what you need to learn for your classes. Drop by the Science Student Success Centre at 3431 Herzberg Laboratories or visit http://sssc.carleton.ca/

University Policies

Student Academic Integrity Policy
Every student should be familiar with the Carleton University student academic integrity policy. A student found in violation of academic integrity standards may be awarded penalties which range from a reprimand to receiving a grade of F in the course or even being expelled from the program or University. Some examples of offences are: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar. The policy is at: https://carleton.ca/senate/wp-content/uploads/Academic-Integrity-Policy1.pdf

Plagiarism
As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean.

Unauthorized co-operation or collaboration
As mentioned above, collaboration between students submitting distinct assignments is NOT permitted in this course.

Equity Statements
You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:
**Pregnancy obligation**
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](http://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

**Religious obligation**
Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: [carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf](http://carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf)

**Academic Accommodations for Students with Disabilities**
If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. [carleton.ca/pmc](http://carleton.ca/pmc)

**Survivors of Sexual Violence**
As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton’s Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: [carleton.ca/sexual-violence-support](http://carleton.ca/sexual-violence-support)

**Accommodation for Student Activities**
Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. [https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf](https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf)

For more information on academic accommodation, please contact the departmental administrator or visit: [students.carleton.ca/course-outline](http://students.carleton.ca/course-outline)

**Medical Certificate**
The following is a link to the official medical certificate accepted by Carleton University for the deferral of final examinations or assignments in undergraduate courses. To access the form, please go to [http://www1.carleton.ca/registrar/forms/](http://www1.carleton.ca/registrar/forms/)