

**Carleton University**  
**School of Computer Science**  
**COMP 3004B: Object-Oriented Software Engineering**  
**Winter 2018**

*Last updated on January 2<sup>nd</sup>, 2018*

**Class Schedule**

Tuesday and Thursday: 8:35-9:55 Richcraft Hall **Room: 2200**

**Winter Break: Feb 19<sup>th</sup> to 23<sup>rd</sup> (no office/TA hours)**

Office/TA hours will be held **starting the week of Jan 15<sup>th</sup> and run until April 6<sup>th</sup>**

**Instructor Info**

Jean-Pierre Corriveau                      room: 5328 HP  
email: jeanpier AT scs.carleton.ca  
office hour: Tuesday 1pm-2pm or by email appointment

**Course Website**      <http://people.scs.carleton.ca/~jeanpier/304W18/>

cuLearn will be used for all assignments posting/submissions and for announcements.

cuLearn is also where to post questions/answers of general interest.

**All course material, except material for the project, will be on the course's web page NOT on cuLearn.**

**Textbook: Head First Design Patterns, Freeman & Freeman, O'Reilly (publishers)**

**TAs: names, emails, office hours**

**(any change will be announced via cuLearn)**

Amir	<a href="mailto:AmirAghasharif@cmail.carleton.ca">AmirAghasharif@cmail.carleton.ca</a>	Friday 9am-12am
Tansin	<a href="mailto:TansinJahan@cmail.carleton.ca">TansinJahan@cmail.carleton.ca</a>	Tuesday 4pm-7pm
Das	<a href="mailto:DasMoitry@cmail.carleton.ca">DasMoitry@cmail.carleton.ca</a>	Monday 9am-12pm
Anselm	<a href="mailto:AnselmOgbunugafor@cmail.carleton.ca">AnselmOgbunugafor@cmail.carleton.ca</a>	Wednesday 10am-1pm
Lexi	<a href="mailto:LexiBrown.cmail.carleton.ca">LexiBrown.cmail.carleton.ca</a>	Wednesday 12pm-2pm
Alex	<a href="mailto:alexpatel@cmail.carleton.ca">alexpatel@cmail.carleton.ca</a>	Monday 1:30pm-3:30pm
Xiusan	<a href="mailto:XiusanZhou@cmail.carleton.ca">XiusanZhou@cmail.carleton.ca</a>	Friday 9am-11am

**Short Course Description**

This course teaches an **agile** yet **model-driven** approach to object-oriented software development. That is, we will learn how to develop models that are useful in the development of OO code from a scenario-oriented viewpoint. Most importantly, we will also learn how to write OO code using design patterns. And, finally, following some of the ideas of test driven development (TDD), we will learn how to write tests using JUnit.

**Topics Covered**

Among topics, we will cover: The agile manifesto, SCRUM, a subset of the Unified Modeling Language (UML 2.0), scenario graphs and some of the design patterns of Gamma et al. (Go4). Time permitting, we will also discuss: use case maps, traceability, design by contracts, death march projects, and computer ethics.

## Learning Objectives

- Know the essentials of UML 2.0, especially with respect to scenario modeling
- Understand a representative subset of the Gang of Four (Go4) design patterns
- Understand the advantages of SCRUM over a waterfall process
- Practice the basic ideas of SCRUM and of Go4 patterns in the context of the project. One of the key aspects of this course is to gain experience in **team-based development**. Another objective of this course is to learn to create a test suite within a test framework (JUnit) that can automatically report on the success or failure of each individual test case. (COMP4004 and COMP5104 focus on how to produce such a test suite in a *systematic* way. Honour's Projects about software testing, especially in the context of games, are available.)

## Prerequisites

The student is assumed to have a strong background in object-oriented programming, as provided by COMP 1406 and COMP 2404. Also, the student is assumed to have been introduced to basic networking (via sockets) and to the MVC pattern.

In addition to programming, you must be able to structure, write, and present industrial quality documents in clear and concise English.

## Evaluation

Students will be evaluated according to the following two components:

- 1) *Team Project*: 60% (weekly deliverables over 2 iterations)
  - ➔ The instructor will create all teams and will announce them by the 5<sup>th</sup> lecture. Students can submit their suggestions for teams of 3 or 4 members by email to the instructor **BEFORE January 12<sup>th</sup>**.
  - ➔ Once teams are formed, all team members are to log **weekly** their duties and achievements and the time they allocate to these. **Each** student is required to submit **on a weekly basis** this log (as will be explained early in the term). Failure to do so will be penalized for *each* missing submission. **Each student should reserve approximately 9 hours or more per week for this course.**
  - ➔ All code submissions will be done via Git (and possibly also cuLearn) and will be monitored **on a weekly basis** in order to assess the contribution of each team member. **All team members do not necessarily receive the same mark!** The contribution of each team member will be taken into account in determining the mark of each team member for each of the two iterations of the project. Also, there will be weekly team reports, *which can include peer evaluations when necessary*. Details on how this works will be explained early in the term. A weekly team meeting **with compulsory attendance** will be held typically at the beginning of the Tuesday class (at 8:35).
- 2) Open-book 3 hour final exam: 40% TBA by the Scheduling Office
  - ➔ The exam will address the contents of the lectures **including** the brief tutorials (tentatively on Git, Maven, Unity, JUnit, Spring, etc.). The tutorials will be typically held **IN CLASS** on Thursday mornings, starting the 11<sup>th</sup>.

## NOTES:

- 1) NO marks associated with the project can be shifted to the exam or from the first iteration to the second one. Also, there is no supplemental or grade raising exam in this course.
- 2) Expectations for teams of 4 members are higher than for teams of 3 members. Also, **teams of 4 members are required to use** Unity for the first iteration and Spring for the second one. Teams of less than 3 or more than 4 members are NOT allowed. However, should you not sufficiently contribute on a weekly basis to your team's work (as observed through peer evaluations and/or logs denoting an insufficient contribution for 2 consecutive weeks), you will have to continue the project by yourself.
- 3) You will *likely* be asked to produce and submit a video illustrating the interface of your final project. Details will be given later.
- 4) Should illness (or *exceptional* circumstances approved by the Faculty) prevent you from submitting on time your weekly contributions, you must email me a medical certificate within 2 days of the missed deadline. Failure to do so, as well as prolonged illness/absence will likely require that you work by yourself, with updated requirements for both you and your affected teammates.
- 5) Demos will be scheduled on April 12<sup>th</sup> and/or 13<sup>th</sup> for the second iteration. Demos for the first iteration **are tentatively to be** scheduled in the week of February 26<sup>th</sup>.
- 6) The requirements for each iteration of the project will define *what is minimally expected* to pass the iteration, as well as what is expected to get a B+/A-. Marking of the iterations will be *partially* relative to the other teams:
  - To get an A, you must **exceed** the requirements given for a B+/A-.
  - To get an A+, you must **dazzle** us!
- 7) 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 Faculty.
- 8) There are several forums for the project: ask general questions to the appropriate forum. In particular, all questions about the requirements for the project and the rules of the game are to be addressed solely to the instructor. TAs are there to help you first and foremost with some of the technologies you use. Please note that Unity is a library you must learn and use by yourself. **Do not miss its tutorial on January 16<sup>th</sup>.**
- 9) Please be aware that while a lot of material will be posted to the course's web page, the final exam will address specific points covered in class. It is therefore expected students will not only attend lectures but also bring *and annotate* the material posted for each lecture.
- 10) **You MUST pass the team project AND the final exam to pass the course.**

## **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](mailto: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/>

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## **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:** write to me 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:  
<http://www2.carleton.ca/equity/>

**Religious obligation:** write to me 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:  
<http://www2.carleton.ca/equity/>

**Academic Accommodations for Students with Disabilities:** The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or [pmc@carleton.ca](mailto:pmc@carleton.ca) for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). Requests made within two weeks will be reviewed on a case-by-case basis. After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website (<http://www.carleton.ca/pmc>) for the deadline to request accommodations for the formally-scheduled exam (if applicable).

You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at <http://www2.carleton.ca/equity/>

### **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/>

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