Course Syllabus

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Last updated: May 1, 2025

CSC207H1: Software Design

Calendar description:

An introduction to software design and development concepts, methods, and tools using a statically-typed object-oriented programming language such as Java. Topics from: version control, unit testing, refactoring, object-oriented design and development, design patterns, advanced IDE usage, regular expressions, and reflection.

More details: **https://artsci.calendar.utoronto.ca/course/csc207h1 (https://artsci.calendar.utoronto.ca/course/csc207h1)**

Learning Objectives:

By the end of this course, you will:

- be able to effectively communicate about software design with your peers
- be comfortable using version control
- be able to write Java code to satisfy program specifications
- be able to apply the SOLID design principles, design patterns, and Clean Architecture to design object-oriented software solutions
- have experienced what it is like to work in a collaborative software development environment
- have a deeper understanding of how to approach testing your code
- be confident in your ability to use more advanced features of your IDE

Course Contact Information

Course email address: pan.chen@utoronto.ca

Course coordinator: Pan Chen

Lab coordinator: Sophia Huynh

Instructional support: Amin Gillani

Lecture & Lab Schedule

	Time	Location

Lecture	Tuesday 6PM - 8PM	RW (https://map.utoronto.ca/?id=1809#!m/494515?share) 110
Lab	Thursday 6PM - 8PM	BA 3175, BA 3185, BA 3195, and BA 2200. Check here (https://q.utoronto.ca/courses/389730/groups) for your assigned room

Please refer to ACORN for the most up-to-date information about the location of the course meetings.

Office Hours

Time	Location
Tuesday 1PM - 3PM	BA2272

The full schedule including TA office hours, special office hours, will be posted on the Office Hours (https://q.utoronto.ca/courses/389730/pages/office-hours) page.

We encourage you to also make use of Piazza and the weekly tutorial time with your peers and TAs to ask questions as you learn the course material.

Marking Scheme

Course marking scheme

Course Work Title	Portion of Course Mark	Due Date / Notes
Weekly Quercus Review Quizzes	5% (1.0% each; best 5 of 9)	Quizzes will be available for the first 10 minutes of the tutorials
5 Assignments	20% (4% each)	Assignments are individual work
Midterm Test	10%	Tentatively during the tutorial on June 5th
Group Project	30%	Group Mark (19%) • Final presentation: 14% • Weekly progress: 5% • Note, without sufficient contribution, a student may get a **discounted group mark** Individual Mark (11%) • Your overall contribution to the project: 10%. • Feedback to other teams: 1%
Final Exam	35%	To be scheduled by the Faculty of Arts and Science

		You need to achieve at least 40% on the final exam; otherwise, your course grade will be no higher than 47% and you cannot pass the course

Weekly Plan

Please check **this page (https://q.utoronto.ca/courses/389730/pages/weekly-calendar-and-important-dates)** for our weekly plan.

Course Topics by Block

The course is divided into three 4-week blocks.

Block 1: Software Developer Skills and Tools

- Version Control
- Java OOP
- Testing
- Refactoring

Block 2: Principles of Software Design

- SOLID design principles
- Clean Architecture (CA)
- Design patterns

Block 3: Professional and Miscellaneous Topics

- ethics modules on users and accessible design
- regular expressions (regex)
- communication and code review
- GenAI and prompt engineering
- interviewing for software jobs

Tutorials/Labs

We will use Tutorials & Labs exchangeably throughout the term.

Tutorials will be a good opportunity for students to apply what they have learnt during the lectures, meet and make connections, work on a group project.

Where shall I go for my tutorials/labs?

In short, you will know where you shall go for tutorials/labs by checking the Groups Page: **https://q.utoronto.ca/courses/389730/groups (https://q.utoronto.ca/courses/389730/groups)** .

- During the first lecture, students will be reminded and choose a lab room at **https://q.utoronto.ca/courses/389730/groups (https://q.utoronto.ca/courses/389730/groups)** . If a student does not have a preference, they will be randomly assigned to one of the available lab rooms on Thursday May 8 around 5PM, before the lab. **You may only attend to the lab at the lab room assigned to you.**
- Students can start forming teams unofficially after the first lab. **Team members must be in the same lab room.**
- After the team is finalized before **Week 6 lab on June 13**, students are no longer allowed to switch to a different lab room by themselves.
  - We might still allow students to switch to a different lab room before the blueprint submission if 1. they want to work with a different team; 2. both the current teammates and the new teammates acknowledge and agree; 3. both teams still meet the size requirement.

Textbook

Most of the core design concepts discussed in this course can be found in Clean Architecture by Robert Martin. The textbook is optional, but highly recommended. Past students have shared that they found the textbook to be very useful. You may also find the following optional books to be interesting reads:

- Object-Oriented Design & Patterns by Cay Horstmann is quite good; the first chapter is a nice crash course on Java
- Effective Java by Joshua Bloch (highly recommended if you plan to code more in Java beyond this course; its emphasis is on how you can best use Java — it doesn't teach the syntax)
- Program Development in Java by Barbara Liskov with John Guttag (takes a very formal approach to software design; in particular, their UI–FP (user interface – functional part) partitioning of the design of a system and their subsequent discussion fits well with our discussion of Clean Architecture in this course)
- Clean Code and Clean Craftsmanship by Robert Martin are also worth reading if you enjoy the author's writing style in Clean Architecture
- Refactoring by Martin Fowler is a great reference for the refactoring topic

Piazza

We will be using Piazza for class discussion. Once enrolled in the course, you should be automatically added to Piazza. The system is highly catered to getting you help fast and efficiently from both classmates and instructors. We encourage you to post course content questions on Piazza — don't be shy! If you have any problems or feedback for the developers of Piazza, you can email **team@piazza.com (mailto:team@piazza.com)** . From experience, they are very responsive and even open to implementing requested features!

Policies & Statements

Late Policy for Individual Work

You are responsible for meeting all deadlines. All individual assignments will be submitted on MarkUs at 6pm on Fridays during the term. To provide reasonable flexibility with your schedule, you may use grace tokens on MarkUs to extend the deadline without penalty up to 72 hours. For each deadline on MarkUs, you will receive 6 grace credits

each worth 12 hours. There will be no extensions on the weekly Quercus review quizzes though. Homework will not be accepted beyond that time without special consideration (see below).

If you're experiencing illness, mental health crises, family/personal emergencies, or other exceptional circumstances beyond your control that prevent you from being able to complete an assessment on time, you can apply for special consideration by completing a form. The form: **Special Consideration Form (https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fforms.office.com%2FPages%2FDesignPageV2.aspx%3Fsubpage%3Ddesign%26FormId%3DJsKqe**

Please note that special consideration cannot be granted to accommodate for heavy course load, multiple assignments and/or tests scheduled during the same period, or challenges with time management. Grace tokens are intended to be used in these situations instead.

In the case of illness, please email your completed form to the course address as soon as possible and we'll make appropriate accommodations, for example, re-weighting of missed term work to the final exam.

Late Policy for Group Work

The course project requires group work. If your group experiences delays due to illness of one or more of your group members, please discuss with your tutorial TA or contact the course address to discuss reasonable accommodations.

Make-Up Quizzes/Tests

If you miss any weekly review quizzes, there won't be make-up quizzes, but note that we will only take the best five out of nine quizzes for assessment. You will be able to do the quizzes as practice.

If you miss the midterm with a valid reason, we will shift the 10% to the final exam.

Remark Requests

All remark requests will be done through MarkUs, and they will be handled before final course grades are submitted. If requesting a remark, you must submit such requests within **two weeks** of the work being returned.

Academic Integrity

Please familiarize yourself with the Rules and Regulations from the U of T Calendar (especially the Code of Behaviour on Academic Matters): **http://www.artsci.utoronto.ca/osai (http://www.artsci.utoronto.ca/osai)** . For assessments for this course, the teaching team reserves the right to run students' submissions using a plagiarism detection tool. The terms that apply to the University's use of this tool are described on the Centre for Teaching Support & Innovation web site (**https://uoft.me/pdt-faq) (https://uoft.me/pdt-faq))** .

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters (https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, please reach out to me. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources. For example, to learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing

support website at http://www.writing.utoronto.ca. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see A&S Student Academic Integrity (https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity) and the University of Toronto Website on Academic Integrity (https://www.academicintegrity.utoronto.ca).

Use of Generative AI

The use of Generative AI is allowed throughout the course. With this said, we caution you to not rely entirely on these tools to complete your coursework. Instead, we recommend treating the use of generative AI as a supplementary tool only for exploration and engaging with the course material. Ultimately, you (and not any AI tool) are responsible for your own learning in this course, and for all the work you submit for credit. It is your responsibility to critically evaluate the content generated, and to regularly assess your own learning independent of generative AI tools. Over reliance on generative AI may give you a false sense of how much you've actually learned, which can lead to poor performance on the final exam, in later courses, or in future work or studies after graduation.

Specific Medical Circumstances

If you become ill and it affects your ability to do your academic work, consult me right away. Normally, I will ask you for documentation in support of your specific medical circumstances. This documentation can be an Absence Declaration (via ACORN) or the University's Verification of Student Illness or Injury (VOI) form. The VOI indicates the impact and severity of the illness, while protecting your privacy about the details of the nature of the illness. If you cannot submit a VOI due to limits on terms of use, you can submit a different form (like a letter from a doctor), as long as it is an original document, and it contains the same information as the VOI (including dates, academic impact, practitioner's signature, phone and registration number). For more information on the VOI, please see **http://www.illnessverification.utoronto.ca (http://www.illnessverification.utoronto.ca/)** . For information on Absence Declaration Tool for A&S students, please see **https://www.artsci.utoronto.ca/absence (https://www.artsci.utoronto.ca/absence)** . If you get a concussion, break your hand, or suffer some other acute injury, you should register with Accessibility Services as soon as possible.

Students with Disabilities or Accommodation Requirements

Students with diverse learning styles and needs are welcome in this course. If you have an acute or ongoing disability issue or accommodation need, you should register with Accessibility Services (AS) at the beginning of the academic year by visiting **https://studentlife.utoronto.ca/department/accessibility-services (https://studentlife.utoronto.ca/department/accessibility-services)** . Without registration, you will not be able to verify your situation with your instructors, and instructors will not be advised about your accommodation needs. AS will assess your situation, develop an accommodation plan with you, and support you in requesting accommodation for your course work. Remember that the process of accommodation is private: AS will not share details of your needs or condition with any instructor, and your instructors will not reveal that you are registered with AS.

Accommodation for Personal Reasons

There may be times when you are unable to complete course work on time due to non-medical reasons. If you have concerns, speak to me or to an advisor in your College Registrar's office; they can help you to decide if you want to request an extension or other forms of academic consideration. They may be able to email your instructors directly to provide a College Registrar's letter of support and connect you with other helpful resources on campus.

Religious Accommodations

As a student at the University of Toronto, you are part of a diverse community that welcomes and includes students and faculty from a wide range of cultural and religious traditions. For my part, I will make every reasonable effort to avoid scheduling tests, examinations, or other compulsory activities on religious holy days not captured by statutory holidays. Further to University Policy, if you anticipate being absent from class or missing a major course activity (such as a test or in-class assignment) due to a religious observance, please let me know as early in the course as possible, and with sufficient notice (at least two to three weeks), so that we can work together to make alternate arrangements.

Fair and Honest Feedback to Team Members

This course provides every student an opportunity to work with other students. Every team member needs to make contributions. We appreciate the diversity of our students, and we acknowledge that different students might make different contributions to their project. Therefore, we have provided the bi-weekly peer feedback for the team members to give feedback to others. We encourage team members to raise professional, constructive, and actionable feedback to their team members. We do not tolerate personal feedback that presents harassment or discrimination. We encourage students to raise honest feedback that can help every team member to learn and improve the teamwork.

Quercus Info

This Course uses the University's learning management system, Quercus, to post information about the course. This includes posting readings and other materials required to complete class activities and course assignments, as well as sharing important announcements and updates. New information and resources will be posted regularly as we move through the term. To access the course website, go to the U of T Quercus log-in page at **https://q.utoronto.ca**.

Please also note that **any grades posted are for your information only**, so you can view and track your progress through the course. No grades are considered official, including any posted in Quercus at any point in the term, until they have been formally approved and posted on ACORN at the end of the course. Please contact me as soon as possible if you think there is an error in any grade posted on Quercus.