

INTRO TO COMPUTER GAME DESIGN
COMP 1501A

Tentative Course Outline (Winter 2022)

Subject to change, pay attention to class for updates in the first week.

Instructor:	Connor Hillen (He/Him)	Time:	Mon. Wed. 16:05 – 17:25 EST
Email:	connor.hillen@carleton.ca	Office Hours:	TBD (Discord)
Website:	https://brightspace.carleton.ca	TA Info:	Posted on course web page
Zoom Code:	On Brightspace	Discord:	On Brightspace

1. About the Course

Course Calendar Description: Introduction to computer game programming interfaces. Topics may include: game balance and level design; storytelling and narrative; basic game architecture; sprite-based games and isometric games; representation of scenes; user interaction; architecture of game consoles; development tools for game consoles; interaction with game peripherals.

Prerequisite(s): one of COMP 1405, COMP 1005

Textbooks and Other Resources: The following textbooks are recommended, but not strictly required. Specific editions are not necessarily important, but reading references will be based on this. All readings are optional, but will help significantly with the course and your career in game development. I would like to include that both of these books are highly and consistently recommended by industry veterans for folks entering the industry, and are a great read for any prospective game developer!

Note: All of the below books are also available as free e-books through Carleton's O'Reilly portal available here: <https://library.carleton.ca/node/16228> - there may be some restrictions on availability.

- (Highly Suggested) Tracy Fullerton, *Game Design Workshop, 3rd Edition, 2014*
 - A practical overview of the process of brainstorming, designing, creating, and releasing games.
 - Note: I will be referencing both 3rd and 4th editions, either is acceptable. 3rd edition is listed as it is available freely via the Carleton Library O'Reilly Books collection online, 4th edition contains a few valuable additions that will be covered in class.
- (Suggested) Jesse Schell, *The Art of Game Design: A Book of Lenses, 3rd Edition, 2019*
 - A game design theory book with hundreds of practical questions to help examine your game and improve it over time. Most valuable after some experience practically creating games.

Additional resources will be made available on the course web page. These includes a course calendar, additional readings, supplemental videos, discussion forums, and more.

Objectives: The goal of this course is to introduce you to the fundamentals of game design and enable you to intentionally design and develop gameplay experiences. By engaging in all of the course content, you should be able to brainstorm a game concept, design the game, incrementally improve the game over time, and develop both tabletop games and digital games using the Godot Game Engine.

Topics Covered: This course covers game design fundamentals and introductory implementation of games. A detailed prospective calendar of lecture topics can be found on the course web page, but topics are subject to change as the course progresses. We begin the course by learning game design fundamentals, apply this theory by designing tabletop games and playtesting with peers, learn about working as a team, and wrap up by developing a digital game as a group in the Godot Game Engine, moving into more specific design theory and tools. Below is a list of topics we'll cover, and what a student that completes all coursework should be able to do with it:

- **Godot Game Engine:** Implement simple computer game prototypes using the Godot Game Engine and GDScript, a Python-like scripting language made for the engine.
- **Build Your Game Vocabulary:** Define a game and describe the different types of games
- **Demonstrate an Understanding of Game Decomposition, Including:**
 - The game loop, MDA Framework
 - The taxonomy of fun
 - Artificial intelligence in games, finite state machines
 - Probability, combinatorics for games
 - Narrative structures in games, incl. the hero's journey, worldbuilding
- **Explain the principles of game design**
- **Understand the incremental process involved in designing games**
- **Apply introductory knowledge of game project management to plan a project and communicate effectively in team settings**

2. Assessments

This course widely revolves around your ability to create engaging games, to build a vocabulary to examine games through, and to work together and communicate in teams.

1. **5 Weekly Assignments:** Each week before reading week, you will be asked to design and test one game each week, with a given prompt. You will need to submit a one sheet instruction manual and answer a few short questions about the design process of each game. The assignment prompts are as follows (subject to change):
 - (Team A) Paper Prototyping: Design a game from a starting goal, test it, and provide instructions.
 - (Team A) Radical Revision: Take the previous week's game, playtest it, find what's fun, and radically revise the game to emphasize the most fun parts.
 - (Team B) Disruption: Take an existing game and radically disrupt one major aspect of it, then test how well the game works.
 - (Team C) Workplace Game: Take a workplace or hobby and attempt to recreate the feeling of engaging in that work through a paper prototype.
 - (Team C) Attempted Digitization: Do your best to digitize the workplace game. You are not expected to complete this, but instead to have a safe place to experiment and learn what's difficult in this process before the final project.

2. **Tutorials:** The tutorials will be used to form teams for each weekly assignment and work on your assignments together as a group with TA guidance. The majority of the work for each assignment is expected to be completed during tutorials, but some work outside of the tutorial is also expected. **If for any reason you can not attend a tutorial, you will still be expected to complete the assignment individually, on time.**
3. **Progress Reports, Peer Evaluations:** During the final project, you will be expected to fill out short, weekly progress reports which detail what you have worked on and what you plan to work on. In addition, each team you work in will require a peer evaluation to be filled out. Only the final project evaluation is used for grading, but the other evaluations are used to help the instructor identify any struggles before the final project begins.
4. **Final Project:** In the second half of the course, you will form a final team to pitch, design, and implement a game in the Godot Game Engine. You must provide weekly status updates to make sure the team is on track each week - saving the work till the last minute is not an option.
5. **Side Quests:** A selection of "Side Quests" will be available on Brightspace. These are small tasks you can choose to complete, each rewarding a certain percentage for completing. There will be suggested side quests, but you are free to choose any you would like to fulfill these requirements. You may also propose side quests to the instructor if you feel there are fun related sideprojects you would like to engage in!
6. **Asynchronous Quizzes:** There will be two quizzes testing, held asynchronously between two lectures; that is, there is a roughly two-day window for you to complete the quiz at any time during the window within the allotted time limit. It must be completed alone; however, we will work on the honour system and there will be no e-proctoring in place. The first quiz covers design theory and game decomposition, and the second covers more technical skills. **One quiz will be worth 10%, the other 15%. The worth will be selected based on which you best performed to provide you with the highest grade.**

The grade weighting for all of these items is as follows:

Assignments (5x6%, Due by following tutorial)	30%
Progress Reports (5x1%, Weekly, March. 6th - 30th)	5%
Quiz 1 (Feb 7th - 9th, Asynchronous on Brightspace) ...	10-15%
Quiz 2 (Mar 28th - 30th, Asynchronous on Brightspace)	10-15%
Side Quests (On Brightspace, can gain up to 5% bonus) ...	10%
Final Project	30%

Tutorials and Assignments: You are required to attend all tutorials so that you can form groups, receive guidance from TAs, and have guaranteed availability for work sessions with your teams. **If you can not attend a tutorial**, you must still catch up and complete the assignment individually, on time. **Note:** Part of learning objectives of the assignments is to learn how to "scope" your game to be playable in the shortest amount of time. This means that while extensions and makeups are available upon request in extenuating circumstances, the time crunch involved in these assignments is to promote smaller, more realistic ideas.

Teamwork and Participation: Students are each expected to provide roughly equal input to group work. If you are strictly unable to participate for extenuating circumstances, please contact the instructor immediately to discuss arrangements. We will be using a series of peer evaluations to identify anyone that might be struggling to uphold their side of the group work - please fill these out openly and honestly so that we can help everyone perform their best. If you are personally struggling with contributing, or you have a member that is completely absent in their work, please reach out to the instructor **immediately**. Bringing up critical issues *after* the assignment has been submitted is not an option for accommodations. It is your team's responsibility to start the work early to catch any issues early.

Collaboration Policy: This course expects a lot of collaboration within teams, and receiving playtest feedback from other students. You are not allowed to work on any other team's work, outside of providing playtest feedback. **You are required** to participate in all different disciplines of tasks involved in the course, as discussed in class. **If it is found through peer evaluations and progress reports that you did not partake in design, development, and playtesting by the end of the year, this is grounds for deductions at the instructor's discretion.**

If you are unsure of what is expected of you, or are unsure of what constitutes inappropriate collaboration, please *ask the instructor and review the academic integrity information*. To further clarify:

- **You may not** use code provided by other students outside of your own teams. Any code used from online sources must be cited in comments and progress reports, and must be used sparingly
- **You may not** give out your code to students in other teams, though you can provide links to helpful resources or help explain general concepts
- **You may not** work on assignments with other students, friends, or family outside of your team, however you may show off in-progress work for playtesting purposes
- **You may not** talk to anyone while taking the midterm quiz

Regret Policy: Sometimes people make bad decisions, and I want to support those that realize that what they did was wrong and want to set things right. As such, if you knowingly commit an academic offense, you will have **48 hours** after submitting the offending material to email the instructor (from a Carleton email address) asking to invoke the regret clause. **You can only do this once.** In this instance, you will receive a zero on the assessment and allowed to submit an individual make-up assessment. If you are suspected to have committed a second offense during the term, this information - including your regret offense - will be forwarded to the dean with no further chances. Your submission **will still be used** to detect misconduct across other students, and any students found to be collaborating will still be subject to misconduct investigations.

3. Course Modality

This course involves in-class activities, graded quizzes, and discussions, and thus must be **synchronous**, or live-streamed. We will be meeting on Zoom for lectures.

You will also need to be able to attend the course Discord during lectures for in-class group activities. Make sure your attendance method allows you to attend both Zoom and Discord simultaneously.

You are expected to attend **every class**. Class recordings will be posted afterwards, but you may miss out on important in-class activities and discussions.

While you are not strictly required to have a camera on, it is **very highly requested** to help with group conversations. You **must** have a working microphone to interact with each other. **Please be aware:** if you turn on your camera or speak during lectures (which is both allowed and encouraged), you may appear in the recording that is posted to Brightspace. You are **not** permitted to share these recordings to help maintain privacy.

4. Make-up Policies, Missed Assessments

I am happy to provide make-ups upon request; however, I strongly discourage using this option unless absolutely necessary as it can lead to a very difficult workload if you fall behind. Another option for making up grades is to use the **Side Quests** - while the first 10% received from side quests goes toward your regular final grade, you can complete up to 5% worth of side quests more to act as bonus marks on top of your grade. **If you are unable to attend a tutorial**, you will still be expected to complete the assignments individually (in the first half of the course) within the time frame provided.

5. Communication Policy

The move to all courses being online has strained the communication for the term. Due to a very high volume of email traffic, emails sent directly to instructors and TAs should be kept to a minimum. **The only emails sent directly to TAs and the instructor should require the confidentiality of direct email.**

Importantly: Before emailing, **check the Discord, review the syllabus, check announcements, and review lecture intros.** Anything easily answered by these components may be ignored, or possibly redirected to the material to evaluate for yourself.

There are three major communication channels you need to be aware of for this course:

- **Discord:** Discord will be the primary place to post general questions about the course, attend tutorials, and hold office hours.
- **Email Announcements:** While Discord will have the most announcements, severely important messages will be sent via Brightspace announcements.
- **Assessments, Tools:** Brightspace will be the primary source for all course material, including assessment specifications, additional readings, calendars, and quizzes. Please review the page occasionally for updates.

You should not email regarding:

- **Assignment Clarifications:** Unless you **must** show your implementation, or discuss your own code, this does not have confidential information and publicly discussing clarifications helps all students.
- **Due Dates:** All due dates are posted on Brightspace and/or in the course outline.
- **Grade Release:** Grades should be released on a regular schedule, but if you are **truly concerned** about when grades are released, you can post publicly to ask
- **Policy Questions:** As the policies are all public information, as long as it is a general inquiry about what a policy means, this should be asked publicly. Of course, if you are inquiring about personal circumstances, send an email privately.
- **Material Questions:** If you are uncomfortable asking publicly, I'm still happy to help in private via email or office hours, but please consider that other students likely have the same question as you and would benefit from hearing the response. If you are comfortable posting questions about material publicly, it can promote valuable discussion!
- **For technical issues** first look on the course website, then the SCS [technical support page](#), then inquire with the teaching assistants who may forward your concern to the instructor.

Students must behave in a professional manner in all communications. Any communication that is seen as discourteous and unprofessional may be moderated, ignored, or in the worst case reported to the university.

Students are expected to check their Carleton email addresses and Discord announcements **daily** for updates. For convenience, you can set up your Brightspace notifications to reduce email volume. Note that you should **not expect responses outside of business hours (8:30AM - 5:30PM, Monday-Friday)**. Due to high volumes, expect up to a 48 hour response. Plan ahead and try to ask questions before the weekend or evenings. Anyone not following the communication guidelines risks having their communication go ignored or redirected, so please make an effort to follow the guidelines as best as you can.

6. Important Considerations

Not following submission guidelines is grounds for a zero. If your submission does not match the submission requirements exactly (which are clearly posted on each assignment), your submission may receive a zero. Make sure to double check the submission guidelines before and after submitting your assignments online. If the requirements are unclear or you are otherwise incapable of meeting them, meet with a TA during office hours, post to Discord, or finally contact the instructor.

If your submitted code does not run for any reason, it may receive a mark of zero. It is recommended that as soon as you upload your assignment, you should download and run it again to make sure everything was submitted correctly.

The final project submission is final. Consider your final project with the same importance you would consider a final exam - once the project submission time is reached, there is unfortunately very little room for any kind of additional accommodations. Ask questions ahead, triple check your submissions, and feel free to come by office hours to check-in on your submission in advance. We can not provide detailed grading notes, but can discuss general points about your submission.

7. SCS Support

SCS Computer Laboratory: SCS students can access one of the designated labs for your course. The lab schedule can be found at: <https://carleton.ca/scs/tech-support/computer-laboratories/>. All SCS computer lab and technical support information can be found at: <https://carleton.ca/scs/technical-support/>. Technical support is available in room HP5161 Monday to Friday from 9:00 until 17:00 or by emailing SCS.Tech.Support@cunet.carleton.ca.

Undergraduate Academic Advisor: The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP; or by email at scs.ug.advisor@cunet.carleton.ca. The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

8. University Policies

For information about Carleton's academic year, including registration and withdrawal dates, see [Carleton's Academic Calendar](#).

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. Examples of punishable offences include: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found [here](#).

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 of Science. Standard penalty guidelines can be found [here](#).

Unauthorized Co-operation or Collaboration: Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis". Please refer to the course outline statement or the instructor concerning this issue.

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. For more details, visit the [Paul Menton Centre website](#).

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. More details can be found [here](#).

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 [Equity Services](#).

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 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: <https://carleton.ca/sexual-violence-support>

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