



**COURSE INFORMATION**  
COMP-4478 Game Programming  
Winter 2024, Orillia

**Calendar Description:**

A practical introduction to game programming and game design concepts, emphasizing the basic tools of game design. A well-rounded skill set is provided by addressing game design art, storytelling, animation, game play mechanics, game engines and various software production methodologies. Throughout the course, students learn to apply industry standard software tools and techniques for the game production processes. Special emphasis is given to object-oriented games and web games via JavaScript, Flash or other newer programming technologies. Students will develop several games through the course assignments and projects.

**Instructor Information:**

Instructor: Dr. Chris Brogly

Office Location: see myCourselink

E-mail: [cbrogly@lakeheadu.ca](mailto:cbrogly@lakeheadu.ca)

Office Hours: Location and hours to be posted on myCourseInfo

**TA(s): see myCourseInfo**

**Course Identification:**

Course Delivery: Lectures, MyCourseLink/D2L

Room and Time: OA-2017, 8:30AM-11:00AM

Final Date to Withdraw (Drop): Friday, March 8, 2024

Final Day of Classes: Tuesday, April 9, 2024

Winter Study Week: February 19, 2024 – February 23, 2024

**Prerequisite(s):**

Computer Science 2477 Object Oriented Programming

**Evaluation**

Final grades are calculated based on the following evaluation:

- 3-4 Assignments, 20%
- Midterm, 30%, March 8th, in class
  - Format: Mixed
- Project, 40%
  - Project Report and Deliverables Evaluation: 40%
  - Due: April 2<sup>nd</sup>
  - The instructor will provide suitable options for game programming projects; students may also select and pursue their own topic with instructor approval. Students will design, prototype, and, ideally, implement a software solution that addresses Game Programming. The scope of the project will be limited to be suitable for a one-term course. The instructor will assess the overall quality of deliverables based on the selected topic and assign a grade. Students may work individually or in groups no larger than 3. Team size may be considered as part of the instructor's assessment. No peer evaluation will be completed; one mark will be assigned to all members. A substantial report on the project will be required.
- Research Paper Short Presentation or Paper Summary, 10%
  - The instructor will assign research papers in Game Programming for students to summarize. Presentations may be required at the instructor's discretion and done live in-class, or as recorded powerpoints to be submitted. This should not exceed 15 minutes.
  - If the instructor opts for the in-class presentation option, they will occur on part of March 22<sup>nd</sup> or on March 29<sup>th</sup>. Otherwise, recorded powerpoints will be submitted by March 29<sup>th</sup> via myCourseLink.

### Course Text and Online Resources:

- Introduction to Game Design, Prototyping, and Development, 3rd edition, by Jeremy Gibson Bond.
- Research Articles and instructor provided documents will be posted on MyCourseLink. Recommended readings per week will be posted by the instructor on MyCourseLink.

Weeks	Topics to cover
	Note: While all listed topics will be covered – the instructor reserves the right to re-arrange some of the weekly topics as the course progresses.
Week 1	Introduction to Game Programming Introducing our Development Environment: Unity (Chapter 16)

Week 2	Thinking like a Designer (Chapter 01) Introducing our Language: C# (Chapter 17, Chapter 18)
Week 3	Game Analysis Frameworks (Chapter 02) Introducing our Language: C# (Chapter 17, Chapter 18)
Week 4	The Layered Tetrad (Chapter 3) Variables and Components (Chapter 19) Boolean Operators (Chapter 20) Loops (Chapter 21)
Week 5	The Inscribed Layer (Chapter 4) The Dynamic Layer (Chapter 5) Lists and Arrays (Chapter 22)
Week 6	The Cultural Layer (Chapter 6) Functions and Parameters (Chapter 23)
Week 7	Acting like a Designer (Chapter 07) Design Goals (Chapter 08) Debugging (Chapter 24)
Week 8	Game Testing (Chapter 10) Classes (Chapter 25)
Week 9	Paper Prototyping (Chapter 09) Math and Game Balance (Chapter 11) Object Oriented Thinking (Chapter 26)
Week 10	Puzzles (Chapter 12) Selected Topics
Week 11	Guiding the Player (Chapter 13) Thinking in Digital Systems (Chapter 15) The Agile Mentality (Chapter 27) Selected Topics
Week 12	Selected Topics

### **Assignments and Evaluations:**

Students taking this course must understand and agree that:

- (1) Unless otherwise allowed by the course instructor, students must complete the assignments in this course without the assistance of anyone else.

- (2) Unless otherwise allowed by the course instructor, students must not access any sources or materials (in print, online, or in any other way) to complete any course exam.

### **Academic Integrity:**

Students must further understand and agree that, if they violate either of these two rules, or if they provide any false or misleading information about their completion of course assignments or exams, they may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students to act ethically and with integrity in academic matters and to demonstrate behaviors that support the University's academic values.

***Assignments:*** There is **Zero-Tolerance** for plagiarism cases. All such cases will be dealt with according to University prescribed rules. All assignments are individual. Students should understand that their assignments must go through a similarity check and if there is similarity detected then **ZERO** mark will be awarded to those students involved in copying.

***Late Assignments:*** Late assignments will automatically receive a **ZERO** however they will be reviewed to provide formative evaluation feedback and must be submitted for course Completion.

### **Course Policies:**

- Behavioral standards to follow: Student Code of Conduct - Academic Integrity
- Attendance and participation in class discussions is highly recommended.
- Students can communicate with the instructor through email.
- The course outline and schedule are not fixed and subject to change based on class flow.
- University's attendance policy is followed.
- There will be 3-4 assignments. There are late penalties for assignments determined by the course instructor. Extensions will be granted only by the course instructor. If you have medical or compassionate grounds for an extension, you should take supporting documentation to the office of the Dean of your faculty, who will contact the instructor.
- Assignments and time will be posted on MyCourseLink/D2L and announced via emails to all registered students.

### **Copyright:**

Students should be aware that all instructional, reference, and administrative materials prepared for this course are protected in their entirety by copyright. Students are expected to comply with this copyright by only accessing and using the course materials for personal educational use related to the course, and that the materials cannot be shared in any way, without the written authorization of the course instructor. If this copyright is infringed in any way, students may be prosecuted under the Lakehead University Student Code of Conduct – Academic Integrity, which requires students

to act ethically and with integrity in academic matters and to demonstrate behaviors that support the University's academic values.

### **Regulations:**

It is the responsibility of each student registered at Lakehead University to be familiar with, and comply with all the terms, requirements, regulations, policies and conditions in the Lakehead University Academic Calendar. This includes, but is not limited to, Academic Program Requirements, Academic Schedule of Dates, University and Faculty/School Policies and Regulations and the Fees and Refund Policies and Schedules (Lakehead University Regulations webpage, 2023-24).

### **Academic Integrity:**

A breach of Academic Integrity is a serious offense. The principle of Academic Integrity, particularly of doing one's own work, documenting properly (including use of quotation marks, appropriate paraphrasing and referencing/citation), collaborating appropriately, and avoiding misrepresentation, is a core principle in university study. Students should view the Student Code of Conduct - Academic Integrity for a full description of academic offenses, procedures when Academic Integrity breaches are suspected and sanctions for breaches of Academic Integrity.

### **Support for Students:**

There are many resources available to support students. These include but are not limited to:

- [Health and Wellness](#)
- [Student Success Centre](#)
- [Student Accessibility Centre](#)
- [Library](#)
- [Lakehead International](#) ● [Indigenous Initiatives](#)

Lakehead University is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities and/or medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please contact Student Accessibility Services (SC0003, 343-8047 or [sas@lakeheadu.ca](mailto:sas@lakeheadu.ca)