CS 105 Introduction to Computer Programming 1

Syllabus

Schedule
Three hours of lecture per week, plus two 1.5 hour mandatory labs per week.
- See Quest for scheduled lecture and lab times

Communication

Websites
- **LEARN** [https://learn.uwaterloo.ca](https://learn.uwaterloo.ca) for announcements, course content, lab and assignment submissions and marks
- **Learn Discussion Boards** [https://learn.uwaterloo.ca/d2l/bb/334844/discussions](https://learn.uwaterloo.ca/d2l/bb/334844/discussions) for questions and clarifications about labs, assignment, and course content.
- **Public Website** [www.student.cs.uwaterloo.ca/~cs105](http://www.student.cs.uwaterloo.ca/~cs105)

Discussion Boards should be used for all questions and clarifications about labs, assignments, and course content. If you feel you need to, Discussion Boards allows private posts that will be only seen by the instructors and TAs. However, whenever possible make a public post so others can benefit from your question and answers.

Email
- **cs105@uwaterloo.ca** (Instructional Support Assistant)
  - assignment and lab remark requests
- **bmzister@uwaterloo.ca** (Instructional Support Coordinator)
  - technical issues with course websites, lab machines, etc.
  - technical issues with clickers and clicker grades
  - missing grades on LEARN
  - illness
  - midterm remark requests
- **kevinh@uwaterloo.ca** (Instructor)
  - anything not addressed by the above

About

Course Philosophy
CS 105 is designed to teach the fundamentals of computer programming through interactive visual media. In other words, rather than writing computer programs to manipulate symbolic data like numbers and text, this course emphasizes computer programs to generate and manipulate interactive graphical imagery like images and video. This approach is well suited to visual thinkers and creative individuals, but these skills are not a requirement.

Since this course teaches universal programming concepts and programming methodologies, students can apply course knowledge to any type of problem or programming language. More generally, by learning to
program, students will learn to think algorithmically: this means thinking in a methodical way to solve problems and accomplish tasks.

The course material does not require any prior computer programming experience or university-level mathematics. This course is primarily designed for students from the arts, social sciences, and sciences who are interested in computer programming, but are not planning to pursue a Computer Science degree.

Course Objectives

This course teaches computer programming concepts and methodologies using an imperative language for generating interactive visual media.

Intended Audience

CS 105 is intended for students who are familiar with the use of a computer (file management, web browsing, etc.) but have little or no experience with programming.

Related Courses

- Prerequisites: None
- Antirequisites: CS135, CS136
- Successor: CS 106

Resources

Hardware and Software

All course material, assignments, and labs are based on version 3.3.6 of the Processing language and the Processing integrated development environment.

Student labs are equipped with Macintosh OSX computers and Processing 3.3.6. Processing is open source and free to download for OSX, Windows, and Linux.

Textbook

Required


Recommended


Lecture Handouts

The lecture handouts contain the text and images of the presentations as prepared in advance. The handouts do not contain everything that the instructor will say, or write on the blackboard, or demonstrate on a computer during the course of the lecture. Instructors may also add their own material. The purpose of the handouts is to relieve students from having to copy everything down, so that they can take additional notes covering what is not in the handouts.

Reading handouts is not an adequate substitute for attending lecture. If you need to miss a lecture, you should contact a classmate who was present and catch up promptly. Presentations may also change slightly at the last minute, and timings are approximate.

Lecture Handouts are typically available on LEARN 24 hours before lecture.
Guides and External Resources

Guides available on LEARN:

- **CS105 Course Survival**: advice on how to do well and avoid common pitfalls.
- **CS105 Code Style Guide**: specifies how lab and assignment code should be formatted, commented, and advice for naming conventions and structuring.
## Grading

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Participation</td>
<td>5%</td>
</tr>
<tr>
<td>Labs</td>
<td>5%</td>
</tr>
<tr>
<td>Assignments</td>
<td>24%</td>
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<tr>
<td>Project</td>
<td>6%</td>
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<tr>
<td>Midterm</td>
<td>20%</td>
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<tr>
<td>Final Exam</td>
<td>40%</td>
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## Participation

Clickers will be used during lectures for feedback and small multiple choice quizzes.

- Participation is calculated by taking the best 75% of clicker grades.
- Students must bring a registered and functioning clicker device to every class.
- It is not possible to submit clicker feedback or quiz answers using paper.

## Exams

There is a midterm and final exam scheduled outside of lecture and lab times.

- The midterm and final are created by the instructor and marked by the instructor, tutors, and all graduate teaching assistants.

**IMPORTANT: You must pass the weighted average of the midterm and final exam to pass the course.**

- For example, if you get 60% on the midterm (12/20) and 40% on the final (16/40), then you will not pass the course since your weighted exam average is 28/60 (less than 50%). This is independent of the rest of your grade for assignments, labs, and participation. If instead you received 35% on the midterm (7/20) and 60% on the final (24/40), then your weighted exam average is 31/60, a passing weighted average. Assuming you achieve at least 19/40 for assignments, labs, and participation, you will pass the course.

## Labs

There are 9 lab exercises.

- Labs are due Fridays at 9 AM (unless otherwise indicated).
- All materials for the current week’s labs are posted on LEARN before the first lab time that week.
- Labs are created by the instructor and are marked by the graduate student teaching assistants based on specifications drawn up by the instructor.
- The grade with feedback will typically be available on LEARN less than 1 week after the assignment is due.

## Assignments

There are 8 assignments.

- All materials for the current week’s assignment are posted on LEARN before the first lab time that week.
- Assignments are created by the instructor and are marked by the graduate student teaching assistants based on specifications drawn up by the instructor.
- The grade with feedback will typically be available on LEARN less than 1 week after the assignment is due.

## Final Project

- The final project will be a culmination of all concepts learned throughout the term.
Typically 2 weeks will be given to complete this project.

**Remarking and Grade Appeals**

**Midterms**
If you believe errors were made in the marking of your midterm, you need to submit it to bmzister@uwaterloo.ca (the Instructional Support Coordinator) along with a completed Midterm Remark Request Form available on LEARN.

- The deadline for midterm remark requests is two weeks after the midterms were returned.

**Assignments and Labs**
If you believe errors were made in the marking of an assignment or lab, email cs105@uwaterloo.ca (the Instructional Support Assistant) and state clearly what you feel was marked incorrectly. Standard policy is that any remark request means the entire assignment will be remarked.

- The deadline for a remark request is one week after feedback and comments are released for that assignment.

**Lab and Assignment Policies**

**Submission**
All assignments and labs must be submitted to LEARN.

- It is the student’s responsibility to verify assignments and labs are submitted to the correct LEARN dropbox and that the correct files were submitted.

**Deadlines**
Assignments and labs that are submitted late will receive a mark of 0.

- There are no deadline extensions for labs.
- Assignment deadlines can only be extended using grace days (see below).

After an assignment or lab due date has passed, you may still submit your work for feedback only (no marks). You must inform the CS105 tutors by email so they are aware of your submission and request for feedback.

**Grace Days**
Assignment deadlines may be extended using “grace days”.

- Using 1 grace day extends your assignment deadline by 1 day (24 hours) without penalty.
- You can use no more than 2 grace days for each assignment.
- You have 6 grace days to use during the entire semester.
- Grace days are not fractional (i.e. there is no notion of a half grace day).
- Markers will record your grace days based on your Learn submission date.

**Missed Work Due to Illness**
With appropriate, authorized documentation, assignment work may be excused (email Barbara Daly when this occurs). If a missed assignment is excused, its weight is distributed over the remaining un-excused assignments. In the interest of understanding the course material for future assignments and exams, students who miss work are encouraged to do it, submit it and request feedback from the tutors.

**Group Work**
All labs and assignments are individual work.
Policy for Device Usage During Lecture

Studies show that using laptops, tablets, or phones during lecture will significantly reduce the grade of the student using the device and other students sitting nearby. Therefore, non-essential device usage during lecture will not be tolerated. Non-compliance can result in banishment from lecture and/or loss of permission for any device usage during lecture.

During lecture, laptops or tablets may only be used to:

- view the lecture slide PDFs
- take lecture notes
- try lecture demo code in Processing
- look up references related to the lecture topic

Laptops or tablets may not be used for anything else during lecture, including:

- working on any assignment, lab, paper, etc.
- watching videos, play games, listen to podcasts, etc.
- instant messaging, email, etc.
- reading facebook, reddit, etc.

Smartphones may not be used during lecture.

Headphones may not be worn during lecture (hearing aids excepted).

Other Important Information

Academic Integrity

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. Check the Office of Academic Integrity's website, http://www.uwaterloo.ca/academicintegrity, for more information.

All members of the UW community are expected to hold to the highest standard of academic integrity in their studies, teaching, and research. This site explains why academic integrity is important and how students can avoid academic misconduct. It also identifies resources available on campus for students and faculty to help achieve academic integrity in — and out — of the classroom.

Grievance

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the departments administrative assistant who will provide further assistance.

Discipline

A student is expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about rules for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean.

Avoiding Academic Offenses

Most students are unaware of the line between acceptable and unacceptable academic behaviour, especially when discussing assignments with classmates and using the work of other students. For information on commonly misunderstood academic offenses and how to avoid them, students should refer to the Faculty of Mathematics Cheating and Student Academic Discipline Policy,
http://www.math.uwaterloo.ca/navigation/Current/cheating_policy.shtml

Appeals

A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72, Student Appeals,

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.

See http://www.studentservices.uwaterloo.ca/disabilities for more information.

Note for students with disabilities

The Accessibility Services Office (AS), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS at the beginning of each academic term. See https://uwaterloo.ca/disability-services/