

SABANCI UNIVERSITY
CS 201 - Introduction to Computing
Spring 2020-2021

Instructors

Gülşen Demiröz (Section A)

- FENS L015
- E-mail: gulsen.demiroz@sabanciuniv.edu
- Lectures
 - Monday 08:40-10:30
 - Wednesday 12:40-13:30
 - <https://sabanciuniv.zoom.us/j/6290818441?pwd=L25LWjdFRHliVHpITU43OXA5M1Y5Zz09>

Barış Altop (Section B)

- FENS G001-C
- E-mail: baris.altop@sabanciuniv.edu
- Lectures
 - Monday 15:40-17:30
 - Wednesday 16:40-17:30
 - <https://sabanciuniv.zoom.us/j/99441436106?pwd=bnU5eURDMHVqdWx0bmhoK0J1eU9iQT09>

IMPORTANT NOTE

THIS SYLLABUS IS PREPARED FOR AN **ONLINE EDUCATION SEMESTER**. IN CASE OF A CHANGE OF EDUCATION METHODS (HYBRID, PHYSICAL, OR ANY OTHER MODEL) DURING THE SEMESTER DEPENDING ON NEW PANDEMIC RULES **THIS SYLLABUS WILL BE UPDATED/CHANGED ACCORDINGLY**.

Course Description

The objective of this course is to introduce students to the field of computing and problem solving with the help of an object-oriented programming language (C++). Hence the course will cover many C++ features in detail as needed so students will also be learning a structured programming language.

Through the lectures, quizzes, take-home exams, and interactive recitations students will learn how to design algorithms based on object-oriented programming paradigms. Evaluation of the solutions in terms of correctness and efficiency will also be covered.

Course Website

<https://sites.google.com/sabanciuniv.edu/cs201>

TextBook

A Computer Science Tapestry, 2nd Edition, Owen L. Astrachan
NOT available in the bookstore anymore but available at the library and online.
We may not stick to the textbook all the time, you are responsible for all material covered in class.

Course Tools and Installation Guide

- [Install Visual Studio 2012 on Windows](#)
- [Install Windows 10 & Visual Studio 2012 on macOS](#)
- [C++ Programming with Xcode on macOS](#)

Tentative Grading (subject to change)

Quiz	20%	
Take-home Exam	20%	
Midterm Exam	30%	(April 16 Friday 19:40-22:00)
Final Exam	30%	

For proctored exams, your webcam and microphone should be on during the exam. In the case of non-compliance with this and other declared exam procedures, your exam will be void. Make sure to check that your webcam and microphone function properly before the exam.

Important Notice about grading:

Weighted average is not the only criterion in letter grading!

- If your exams' *weighted* average ($((MT * 0.3) + (Final * 0.3))/0.60$) is below 30, you will fail the course even if your total grade is equal or above the overall passing grade. (Having exams' weighted average greater than or equal to 30 does not mean that you will pass the course.)
- There won't be any make-up for quizzes and take-home exams in any case, including medical health reports and official university activities.
- If you miss all of the quizzes, all of the take-home exams, midterm and final exams as well; then you will get an NA grade.
- If you miss the midterm or the final exam and if you do not take the make-up exam for that missing exam; then you will directly get an F grade.

Take-home Exams

There will be at least 5 or more take-home exams like mini programming projects. They will be assigned and collected at **SUCourse+**. All of the assigned take-home exams will be graded and taken into consideration in the overall grade. Recitations will be used for clarification about these.

Contribution of the take-home exams to the overall grade will be calculated according to the formula given below:

$$take_home_grade = \begin{cases} take_home_averg & \text{if } ratio \leq 2 \\ take_home_averg \times (3 - ratio) & \text{if } 2 < ratio < 3 \\ 0 & \text{if } ratio \geq 3 \end{cases}$$

$$ratio = submitted_take_home_avr / weighted_exam_averg$$

$$weighted_exam_averg = (0.3 \times midterm_grade + 0.3 \times final_grade) / 0.6$$

$$course_numeric_grade = quiz_grade \times 0.2 + take_home_grade \times 0.2 + \\ midterm_grade \times 0.3 + final_exam_grade \times 0.3$$

Your programs will be automatically graded by GradeChecker (GC), more details about GC is [here](#).

Quizzes

There will be 4 or more quizzes. All quiz dates will be announced at least one lecture prior to the quiz.

Contribution of the quizzes to the overall grade will be calculated according to the formula given below:

$$quiz_grade = \begin{cases} quiz_averg & \text{if } ratio \leq 2 \\ quiz_averg \times (3 - ratio) & \text{if } 2 < ratio < 3 \\ 0 & \text{if } ratio \geq 3 \end{cases}$$

$$ratio = submitted_quiz_avrrg / weighted_exam_avr$$

$$weighted_exam_averg = (0.3 \times midterm_grade + 0.3 \times final_grade) / 0.6$$

$$course_numeric_grade = quiz_grade \times 0.2 + take_home_grade \times 0.2 + \\ midterm_grade \times 0.3 + final_exam_grade \times 0.3$$

Useful Information about course and FAQ

You can also find them [here](#).

Expectations from Students

- Students are expected to attend all classes, recitations and labs. Learning a programming language is much easier when a person explains it. You have to spend more time to compensate for a missed class. So

absenteeism does not buy time. You must attend the Zoom lectures, recitations, and real-time online exams with your SU email account.

- Students are responsible for the material covered in class even if it is not part of the lecture notes published on the website (Sometimes we explain some stuff on the board). That is why attendance is important.
- Students are responsible to check their emails (Sabanci University accounts), SUCourse and course website daily for any announcements related to this course.
- **PLAGIARISM WILL NOT BE TOLERATED.**
 - Any act of plagiarism may result in a direct fail (F) of the course.
- If you need to take a medical report for any exam;

Please read the policies on both **plagiarism** and **make-up exams** [here](#).

Course Outline

- Week 1: Introduction to Programming Languages, Data Representation (bits and bytes), basic programming structure and concepts: identifiers, literals, symbols, variables, screen input/output (cin and cout)
- Week 2: Basic data types (int/double/char/bool) and basic arithmetic operations with their precedence, first C++ program with Visual MS Studio
- Week 3: Functions with/out return values, function prototypes, parameter passing (pass by value and by reference)
- Week 4: Conditional statements (if-else), nested else-if statements, logical operators (&&, ||, !)
- Week 5: String class, loops (while, for, do-while)
- Week 6: Loops (while, for, do-while), char data type
- Week 7: File I/O, console stream cin, input and output file streams, string streams
- Week 8: *Midterm (Tentative, Lectures may continue)*
- Week 9: Structs, enum, vectors/arrays and vector operations: sequential/binary search, insert/delete to a vector
- Week 10: Sorting (selection and insertion sort) and introduction to algorithm complexity analysis, vector of structs, matrix
- Week 11: Classes and objects: using class Robot class with a ready-to-use GUI
- Week 12: Classes and objects: using and modifying existing classes such as Dice, RandGen, Date and Robot
- Week 13: Pointers, linked lists
- Week 14: Recursion