Fall 2023

CS 113: Introduction to Computer Science

Junilda Spirollari

Recommended Citation

Spirollari, Junilda, "CS 113: Introduction to Computer Science" (2023). *Computer Science Syllabi*. 235.
https://digitalcommons.njit.edu/cs-syllabi/235

CS 113 - Introduction to Computer Science I
Course Syllabus, Fall 2023

Instructor: Junilda Spirollari
Course Assistant:

Overview

This course is a comprehensive introduction to the Java programming language, writing and testing of programs. The course consists of three major parts. The first part teaches fundamental programming techniques that use primitive data types, variables, assignments expressions, operators and control statements. The second introduces object-oriented programming, methods, parameter passing, recursion and arrays. The third part delves deeper into object-oriented programming by exploring inheritance, interfaces, polymorphism, abstract classes and finally discussing exception handling.
Learning this material requires extensive hands-on practice. You should plan to spend twice as much time studying and working on problems outside of class, as you do in class.

Textbook

Java Software Solutions, 9th edition – John Lewis & William Loftus, ISBN-13: 9780134462028, Pearson. (One could use an older version; however, it is his/her responsibility to make sure homework problems coincide with the ones assigned.)

Prerequisites

CS100 – Roadmap to Computing or equivalent

Course Policies

Attendance is mandatory. A student who misses more than five classes will be dropped, without credit. Getting to class late or leaving early counts as half an absence.

Canvas (https://canvas.njit.edu/) will be used for course related activities.

Homework and must be submitted on Canvas on the due date/time. All submitted work (including exams) must include your name and student ID. EXCEPT for special circumstances (such as jury duty or medical problem), for which you must provide documentation through the Dean of Students, the following LATE SUBMISSION PENALTY will be applied:
Up to 1 DAY LATE: -20 pts
Up to 2 DAYS LATE: -40 pts
NO SUBMISSIONS WILL BE ACCEPTED after 2 DAYS following the homework Due Date.
The lowest scored homework will be dropped from the final grade calculation.

Lab work must be completed during the lab session and submitted on the due date/time. EXCEPT for special circumstances (such as missing class due to a medical problem), for which you must be excused by the Dean of Students, you MUST BE present in class in order to receive credit for the assigned work. If excused, the average lab score will be used as the missed lab work. No make-up assignments will be provided.

Online quizzes will be given weekly at the beginning of every lecture class.
Class participation is a regular part of class meetings. Students will be expected to present their homework/classwork in class. Asking/answering questions as well as participating in group discussions are also part of class participation.

Plagiarism in any of the course assessments will result in a student report being sent to the Dean of Students.

Cell phones must be turned off during class. During class time you may not play games, text, email, browse the web or engage in other activities that are not part of the class.

Students will be informed of any modifications of the syllabus during the semester.

Recitation hours will be provided weekly and conducted by the course assistants. Attending recitation is an important course activity in helping the student grasp the material covered during the class and solve the assigned problems. Students are expected to have read the assigned material and worked on current homework before attending the recitation. It is expected that students will be prepared to ask questions that need clarification. The students may also meet with their instructors. All instructors have posted office hours.

Tutoring hours are also provided by our college. The link to the tutoring page is: Tutoring | Ying Wu College of Computing (njit.edu).

Material covered
- Introduction to programming and Java programming language
- Data and Expressions
- Using Classes and Methods
- Decisions and Loops
- Arrays and File I/O
- Objects-Oriented Programming
    a. Object-Oriented Design
    b. Defining Classes and creating Objects
    c. Defining methods
    d. Inheritance
    e. Polymorphism
- Recursion
- Exceptions
- Collections

Learning Outcomes

Upon completing the course, the students will be expected to know and be able to use these elements to compute the solution to a problem:
- Understand the concept of classes and objects
- Design and implement own classes
- Create and correctly use objects of different types
- Devise a sequence of steps (algorithm) that correctly solves a given problem.
- Write a program that implements the algorithm using:
    o A main set of java programming language elements (variables, syntax, keywords)
    o Data types (primitive and object data types including arrays)
    o Statements that perform input/output, control statements
    o Exception handling
- Understand inheritance and polymorphism and correctly use to solve complex problems
- Understand recursion and implement recursive methods

Evaluation

The evaluation will be based on the following course requirements:

Midterm 1	15%
Midterm 2	20%
Final Exam	30%
Homework	15%
Labs	12%
Lecture Quizzes	6%
Discretionary	2%

Letter Grade Formula

Grade	A	B+	B	C+	C	D
Overall Course Score Cutoff	85	80	74	68	60	50

Exam Policies

There will be two midterm exams: Monday, October 16th and Monday, November 13th, 4:00pm-5:45pm. The final exam will take place during the final exams' week. All exams will take place in person, on Canvas, and will require Lockdown Browser.
Be sure that you will be present for all of your exams as there are no make-up exams.

You must bring a photo ID to all exams. Students with special needs are advised to **make arrangements with the Office of Accessibility Resources and Services**.

There are no makeup exams. Students who miss an exam because of extenuating circumstances should **document them with the Dean of Students**.

If you believe that you deserve more credit than you have been awarded on a particular exam problem, you may request a grade appeal, **at the time the exam is returned**. Your entire exam will be regraded, which may result in points being added or subtracted.

University Code on Academic Integrity

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: *http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf*.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. *Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.* *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at* *dos@njit.edu*

Tentative Agenda

Lecture 1	TENTATIVE AGENDA	CHAPTER
1	Introduction to programming and Java programming language	Ch. 1
2	Data and Expressions, Using Classes &Objects	Ch. 2, 3
3	Using Classes &Objects, Writing Classes	Ch. 3, 4
4	Writing Classes	Ch. 4
5	Conditionals+ loops	Ch. 5, 6
6	Loops + Review for Mid 1	Ch. 6
7	Object Oriented Design + Arrays	Ch. 7 + Ch. 8
8	Arrays	Ch. 8
9	Recursion	Ch. 12
10	Recursion + Review for Mid2	Ch. 12
11	Inheritance	Ch. 9
12	Polymorphism	Ch. 10
13	Exception Handling	Ch. 11
14	Collections - Review (Final)	Ch.13