Fall 2020

CS 113-005: Introduction to Computer Science I

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CS 113 - Introduction to Computer Science I
Course Syllabus, FALL 2020

Lecture Instructor:
Lab Instructor:
Course Assistant:

Overview

This course is a comprehensive introduction to the Java programming language teaching writing, testing and debugging of programs. The course has three major parts. The first part teaches fundamental programming techniques that use primitive data types, variables, assignments expressions and operators, control statements, arrays and files I/O. The second part covers testing and debugging and teaches students how to write programs that work reliably. The third part introduces object-oriented programming. The course guides students to the development of comprehensive Java applications.

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 the 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

This course is offered as a Synchronous Online and Converged Learning Course. All night sections are conducted using Webex, a real-time synchronous conference technology. All day sections are taught partially face-to-face (lecture) and partially synchronous online (lab).

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 discussion.

Homework must be submitted Canvas on the due date. They will not be accepted late except for special circumstances (such as jury duty or medical problem), for which you must provide documentation. All submitted work (including exams) must include your name and student ID.

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 will result in zero credit for the assignment and/or an XF grade in the course.

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.

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 use correctly object 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:

Homework	18%
Midterm 1	20%
Midterm 2	24%
Final Exam	32%
Attendance	4%
Miscellaneous	2%

Letter Grade Formula

Letter Grade	A	B+	B	C+	C	D
Overall Course Score Cutoff	85	80	75	70	60	50

Exam Policies

There are two common midterms: Monday, October 19 and Monday, November 16, 4:00-5:45pm. The final exam will take place during final exam week, December 15-21. ***Be sure that you will be present for all of your final exams. All exams will take place on-line.***

All exams will take place online using Respondus LockDown Brower and Monitor to monitor for and proctor the test. All students are required to have a working webcam in order to take the exam. More information about Respondus Lockdown Browser can be found at https://web.respondus.com/student-help/ .

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 a midterm 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.

Exams do not require any portable electronic devices, such as cell phones or calculators. In case such devices are brought to the exam room, **they must be left with the proctor for the duration of the exam**.

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

Week	Topic	Reading from book
	Introduction to programming and Java Programming Language	Ch. 1
1,2	**Data and Expressions**	Ch. 2
2	**Using Classes & Objects,**	Ch. 3
3	**Writing Classes**	Ch. 4
4	**Writing Classes, Conditionals**	Ch. 4, 5
5	**Conditional & Loops**	Ch. 5, 6
6	**Loops + Review (Mid1)**	
7	**Object-Oriented Design (Testing &Debugging), Arrays**	Ch. 7, 8
8	**Arrays**	Ch. 8
9	**Recursion**	Ch. 12
10	**Recursion + Review (Mid2)**	
11	**Inheritance**	Ch. 9
12	**Polymorphism**	Ch. 10
13	**Exception Handling**	Ch. 11
14	**Collections + Review (Final)**	Ch. 13