

CS 116 Object Oriented Programming II

Fall 2017

Instructor Info

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Course Office hrs:

Time: TR 3:00 to 4:00 PM

Venue: SB 010

Also, by appointment (email)

Course Info

Course lecture schedule: T (5:00 – 6:40 PM), R (5:00 – 5:50 PM)

Classroom: SB #112J

Course website: <https://blackboard.iit.edu/> (only)

Course Description

Introduces more advanced elements of object-oriented programming, including dynamic data structures, recursion, searching and sorting, and advanced object-oriented programming techniques such as inheritance, polymorphism, interfaces, and abstract classes.

Prerequisites

CS 115

Course Materials

Recommended textbook:

“Java Illuminated: An Active Learning Approach” by Julie Anderson and Herve Franceschi, Third or Fourth Edition

Lecture slides, quizzes, and assignments will be posted on the course website.

CS 116 Course Outcomes:

1. Analyze and explain the behavior of simple programs involving the following fundamental programming constructs: assignment, I/O (including file I/O), selection, iteration, methods
2. Write a program that uses each of the following fundamental programming constructs: assignment, I/O (including file I/O), selection, iteration, methods
3. Break a problem into logical pieces that can be solved (programmed) independently.
4. Develop, and analyze, algorithms for solving simple problems.
5. Use a suitable programming language, and development environment, to implement, test, and debug algorithms for solving simple problems.

6. Write programs that use each of the following data structures (and describe how they are represented in memory): strings, arrays
7. Explain the basics of the concept of recursion.
8. Write, test, and debug simple recursive functions and procedures.
9. Explain and apply object-oriented design and testing involving the following concepts: data abstraction, encapsulation, information hiding, inheritance, polymorphism
10. Use a development environment to design, code, test, and debug simple programs, including multi-file source projects, in an object-oriented programming language.
11. Implement basic error handling
12. Solve problems by creating and using sequential search, binary search, and quadratic sorting algorithms (selection, insertion)
13. Determine the time complexity of simple algorithms.
14. Apply appropriate problem-solving strategies
15. Use APIs (Application Programmer Interfaces) and design/program APIs

CS 116 Program Outcomes

- a. An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.
- b. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- c. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.
- i. An ability to use current techniques, skills, and tools necessary for computing practices.
- j. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- k. An ability to apply design and development principles in the construction of software systems of varying complexity.

Grading Policy

ASSIGNMENT	TOTAL POINTS
Labs	26
Project	12
Quizzes	12
Exams	50
Total	100

Late Submission Policy:

Late submission beyond the deadline specified is not accepted. In cases of emergencies such as medical emergency, contact the instructor if you are unable to make the deadline. Submissions of assignments will be handled through Blackboard and the submission site will close automatically at the deadline.

Code of Academic Honesty

Honor code is in effect for this course. Unless specified otherwise, all the work in the course is individual work, to be done by the student alone. All violations will be reported to academichonesty@iit.edu and may result in a failing grade for the assignment and/or course.

<https://web.iit.edu/student-affairs/handbook/fine-print/code-academic-honesty>

Students with Disabilities

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources. The Center for Disability Resources (CDR) is located in 3424 S. State St., room 1C3-2 (on the first floor), telephone 312 567.5744 or disabilities@iit.edu.