CS 115 - Introduction to Computer Science I in C++
Course Syllabus, Spring 2025

Instructor: Jertishta Qerimaj
Office Location and Hours: GITC 4301, Thur. 9:00 am. - 9:50 am., Fri. 11:00 am – 12:50 pm.
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TA: TBD
Email:

Class Location and Time:
Section 004: Tuesday, Thursday 10:00 am. – 11:20 am. – CKB 223
Section 006: Tuesday, Thursday 11:30 am. – 12:50 pm. – CKB 317

Overview

This course introduces the fundamentals of computer science, with an emphasis on programming methodology and problem-solving. Topics covered include basic concepts of computer systems, software engineering, algorithm design, programming languages, and data abstraction, with practical applications. The high-level programming language C++ will be used extensively throughout the course to illustrate key concepts.

Topics covered include:

- Introduction to programming environments and essential tools such as editors and debuggers
- Problem-solving strategies
- Basic data types, including integers, doubles, booleans, and strings
- Data structures such as arrays and vectors
- Input and output streams, including file handling
- Control structures for program flow, including conditionals, loops, and functions
- Introduction to object-oriented programming, including user-defined classes and inheritance
- Error handling and exceptions
- Recursion

Textbook and Course Materials

1. **zyBooks**
   a. Sign in or create an account at zyBooks
   b. Enter the zyBook code: `NJITCS115QerimajSpring2025`
   c. Subscribe to the zyBook.
2. **Lecture Notes**
   Available on Canvas.
3. **Visual Studio**
   Available for download via Visual Studio.
4. **Replit**
   An online C++ compiler available at Replit.

Course Policies

Attendance: Attendance is mandatory. A student who misses more than **five (5)** classes will be dropped from the course, with no credit.

Student Absences for Religious Observance
NJIT is committed to supporting students observing religious holidays. If you anticipate any conflicts between course requirements and your religious observances, you must notify the instructor in writing by **the end of the second week of classes**, and **no later than two weeks before** the anticipated absence. Reasonable accommodations will be provided for the missed coursework if the religious observance directly prevents you from completing or attending these activities. However, no accommodations will be provided for assignments with deadlines that allow sufficient time for completion (e.g., assignments with a week or more to complete). Students are expected to plan ahead and ensure timely submission of their work in these cases.

Classroom Etiquette:

Cell Phones: Must be turned off during class. During class you may not text, browse the internet or engage in any online activities that is not part of the class.

Course Communication

All course-related materials, including lecture notes, assignments, and announcements, will be posted on **Canvas** (canvas.njit.edu). Students should use Canvas to submit assignments, participate in discussions, and contact the instructor or teaching assistants via email.

Homework & Lab Assignments

- Homework must be submitted through **Canvas** or **zyBooks** before the due date and time. Late submissions will **not** be accepted unless there are special circumstances (e.g., jury duty, medical issues) with proper documentation.
- A typical homework assignment will require you to write code that produces a specified output. **No credit will be awarded for code that does not run.**
- You are encouraged to use debugging tools available in your development environment, seek help through Canvas, and discuss problems with others. However, all work must adhere to the university's **Academic Integrity Policies**.

Academic Integrity:

- All homework and assignments must be original; copying code from external sources (e.g., online forums, previous students' work, AI generated code) is **strictly prohibited**.
- You are not allowed to use concepts or methods not taught in class up to the submission date.
- Students must understand and be able to explain all the code they submit.
- **Generative AI** - This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. The use of AI tools to generate solutions for homework, exams or other individual assignments is **strictly prohibited** in this course. Any unauthorized use of AI to complete assignments will be considered a violation of academic integrity policy.

Plagiarism will result in a **zero** for the assignment and/or an **XF grade** for the course.

Course Student Outcomes

By the end of the semester, students will achieve the following learning outcomes:

- **C++ Fundamental Concepts**
  - Understand C++ syntax and semantics.
  - Use basic data types effectively, including integers, doubles, booleans, characters, and strings.
  - Work with complex data structures, such as arrays.
  - Utilize streams and files for input/output operations.
  - Implement control flow structures, including:
    - Conditionals (e.g., if-else, switch statements).
    - Loops (e.g., for, while, do-while).
  - Define and use functions with parameters and return values.
  - Handle errors effectively using try-catch blocks.
- **Object-Oriented Programming (OOP)**
  - Create classes and objects with attributes and methods.
  - Apply encapsulation to ensure data integrity and security.
  - Implement inheritance to establish relationships between classes.
- **Problem-Solving Skills**
  - Analyze real-world problems and develop effective algorithms to solve them.
  - Decompose complex problems into smaller, manageable modules.
  - Implement programming solutions using clear, organized, and efficient code.
- **Debugging and Testing**
  - Identify and resolve errors, including syntax, runtime, and logical errors, using various debugging techniques.
  - Develop multiple test cases to validate program functionality, accuracy, and robustness.

Grading Breakdown

- **Homework/Lab Assignments**: 35%
- **Midterm Exam**: 25%
- **Final Exam**: 30%
- **Attendance**: 5%
- **Miscellaneous (e.g., participation, quizzes)**: 5%

Grade *(Letter grade is based on overall course score)*:

Grade Formula						
Grade	**A**	**B+**	**B**	**C+**	**C**	**D**
Overall Course Score Cutoff	90	85	80	75	70	60

Exam Policies

- **Midterm Exam**: Tuesday, March 11th – Same class time and location that class usually meets.
- **Final Exam**: TBD

The final exams period is May 10 – 17, 2025. The CS115 final exam will be during this period, but the date has not yet been set. All exams will be conducted in person, using Canvas, and will require Lockdown Browser. ***Be sure that you will be present for all of your exams***.

ID Requirement: 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, Kupfrian Hall 201.

No Makeup Exams: If you miss an exam due to a documented special circumstance, the weight of the missed exam may be imputed from the other exam.

Regrading: If you believe your exam has been graded incorrectly, you may request a regrade within **48 hours** of receiving your exam. The entire exam will be regraded, which may result in points being added or subtracted.

Electronic Devices: Only your computer may be used during exams. Cell phones, smartwatches, calculators, or other electronic devices must be turned off and put away.

University Code of 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: NJIT Academic Integrity Code.

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 Weekly Coverage of Material

Week #	Subject	zyBook Reading
1	Introduction to C++	Ch. 1
2	Variables and Assignments	Ch. 2
3	Flow Control - Conditionals	Ch. 3
4	Flow Control - Loops	Ch. 4
5	Arrays and Vectors	Ch. 5
6	User-Defined Functions	Ch. 6
7	**Midterm Exam** (Ch. 1-6)	-
8	Parameters and Overloading	Ch. 6
9	Input/Output Streams	Ch. 7
10	Objects and Classes	Ch. 8
11	Constructors and Operator Overloading	Ch. 8
12	Inheritance and Polymorphism	Ch. 9
13	Recursion	Ch. 10
14	Exception Handling	Ch. 11
15	Pointers	Ch. 12
15	**Final Exam Review**	-