Bunker Hill Community College
Prepared by: Ethan Cerami

CSC-285: Fall 2025 Advanced Java

COURSE TITLE: Advanced Java

Course Number: CSC-285	Instructor: Ethan Cerami, Ph.D.
Date/Time: Fridays 9:00 - 11:45 am	Office Hours: WebEx, by appointment
	Email: ethan.cerami@bhcc.edu
Location: Charlestown Campus: D Building, D119 In Person	

👋 WELCOME:

Welcome to the Fall 2025 semester of CSC-285: Advanced Java! My name is Ethan Cerami, and I will be your instructor this semester.

This is a course in **Advanced Java Programming**, and we will be covering a large number of my favorite topics, including:

- Refresher on Object-Oriented Programming (OOP)
- Building Java projects with the Maven build tool
- Writing unit tests in JUnit
- Multithreading
- Network I/O
- Database connectivity
- Java Servlets
- Building web applications with Spring / Spring Boot

Throughout the semester, you will gain practical skills in Java, and practice those skills via multiple programming assignments.

💡 **OFFICIAL COURSE DESCRIPTION:** This course thoroughly examines many of the sophisticated features of the Java programming language, including interfaces, advanced graphics, some data structures, file I/O techniques, multithreading, advanced JDBC Servlets, and Java Server Pages. Students demonstrate their mastery of the material through a series of graded projects and examinations that challenge at an extremely high level. The course not only instructs in the preparation of applications and applets that focus on business-related topics, but also teaches Java in an internet-based, integrative environment that utilizes cross-platform tools.

🎓 **PREREQUISITES**: MAT-197 and CSC-239 with grade of C or better.

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🎯 **STUDENT LEARNING OUTCOMES:** Upon completion of this course students should be able to:

- Demonstrate a deep understanding of objects and classes by creating objects and classes.
- Use UML graphical notations to describe classes and objects.
- Understand the role of constructors and demonstrate the differences between constructors with arguments and no-arg constructors.
- Demonstrate an understanding of the difference between instance and static variables and methods.
- Apply class abstraction to develop software.
- Develop a subclass from a superclass through inheritance.
- Demonstrate differences between overriding and overloading.
- Demonstrate an understanding of the object-oriented concepts of polymorphism. dynamic binding, and generic programming by using them in code.
- Restrict access to data and methods using the protected visibility modifier.
- Design and use abstract classes.
- Know the similarities and differences between an abstract class and an interface.
- Understand exceptions and exception handling.
- Use generic classes and interfaces.
- Build Java applications with Maven.
- Write Unit Tests in JUnit.
- Build multi-threaded applications.
- Build network IO applications.
- Access and update databases via JDBC and JPA.
- Understand the concept of servlets.
- Run servlets within Tomcat.
- Use the servlets API.
- Build Spring / Spring Boot Applications.

🎓 **PROCEDURES AND OBJECTIVES:** Lecture and group discussions, readings for class from texts, online resources, and other related materials, hands-on participative exercises and labs.

📚 **REQUIRED TEXT:**

- **Introduction to Java Programming and Data Structures, Comprehensive Version 12th Edition**, by Y. Liang.
    - Most of what we are covering in the book is only available online and is entirely free. I therefore only recommend buying the book if you need a Java refresher.
    - There is no need to purchase the MyLab digital option.
- Additional online reading assignments will also be provided.

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🖥️ **SOURCE CODE:**

All source code discussed in class will be made available via GitHub at: https://github.com/ecerami/CSC-285.

🧭 **COURSE OUTLINE**:

BHCC Fall 2025 Calendar

Wk	Class Date	Topic	Assigned Reading
1	09/05/2025	Introduction and Java OOP Review	Chapter 9
2	09/12/2025	Java OOP Review Continued	Chapters 10-13
3	09/19/2025	Building, Logging and Testing: Maven, SLF4J and JUnit	Chapter 44. Online reading will also be provided.
4	09/26/2025	Multithreading 1	Chapter 32
5	10/03/2025	Multithreading 2	Chapter 32
6	10/10/2025	Multithreading 3	Chapter 32
7	10/17/2025	Networking	Chapter 33
8	10/24/2025	Databases 1	Chapter 34
8	10/31/2025	Databases 2	Chapter 34
9	11/07/2025	Servlets	Chapter 37
10	11/14/2025	Servlets and Templating	Refer to Lecture Notes, and Online reading will be provided.
11	11/21/2025	CSS and Bootstrap	Refer to Lecture Notes, and Online reading will be provided.
12	11/28/2025	No Class - Thanksgiving	

13	12/05/2025	Spring / Spring Boot, Part 1	Refer to Lecture Notes, and Online reading will be provided.
14	12/12/2025	Spring / Spring Boot, Part 2	Refer to Lecture Notes, and Online reading will be provided.

🎓 **ATTENDANCE POLICY**: Students will be required to attend and participate in all classes.

💯 **SPECIFIC EVALUATION AND GRADING PROCEDURES (INCLUDING INTELLECTUAL SKILLS):** Students will be required to complete a variety of assignments outside of class, and create software applications in order to demonstrate competency in software development.

There will be a total of **8 project assignments.**

Evaluation	**% Value**
Assignment #1: Focus on OOP Fundamentals	~12%
Assignment #2: Focus on Unit Testing	~12%
Assignment #3: Focus on Multithreading	~12%
Assignment #4: Focus on Network I/O	~12%
Assignment #5: Focus on Networking and Database	~12%
Assignment #6: Focus on Servlets	~12%
Assignment #7: Focus on Servlets, Freemarker and Bootstrap	~12%
Assignment #8: Focus on Spring MVC	~12%
Class participation	~5%
Total	**100%**

🧨 **Important to note:**

- Projects must be submitted via Moodle. **Homeworks can be submitted up to 1 week late, but no more. If you submit after the deadline, there is an automatic 15 point deduction. After 1 week, you get 0 credit for homeworks. If you have extenuating circumstances, and can't make the deadline, email the instructor.**
- Students will be graded on correctness, modularity and readability of code.

💣 **INTEGRITY OF SCHOLARSHIP:** Honesty in all academic work is expected of every student. This means that all projects shall be the original creation of each student.

🎓 **DISABILITY SUPPORT SERVICES:** The disability support services office is a student-focused department dedicated to assisting members of the BHCC community with documented disabilities. Students may be eligible for services that include testing and classroom accommodation. For more information or to request an accommodation, contact the disability support services office at disabilitysupport@bhcc.edu or 617-228-2327. Students are encouraged to request accommodations as early as possible, ideally before the start of the semester. For information about programs and services please visit https://www.bhcc.edu/disabilitysupportservices.

🎓 **CLASS ETIQUETTE: You must come to class. Please arrive on time!**