Introduction to Object Oriented Programming

89-111

Course type: lecture + recitation

The course introduces the following topics, not necessarily in this order:

- Introduction to Java
- Classes and Objects
- Test Driven Development / Design by Contract
- The Java Collection Hierarchy
- Encapsulation
- Interfaces, APIs and Interface Design
- Polymorphism
- Generics
- Exception Handling
- Inheritance versus composition and delegation
- Immutability
- Design Patterns
- Iteration
- Serialization and I/O
- in other languages (python)OO

Outcomes: Fundamentals of programming and design of object-oriented code. Practicing the Java programming language.

Website: Piazza
_requirements:*

**Prerequisites:** course 89-110

**Assignments and other duties:** final exam + programming exercises

**Grade:** 80% final exam, 20% assignments. A passing grade in both is required to pass the course.

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**Bibliography:**

Recommended reading:

*The Java™ Tutorials* [https://docs.oracle.com/javase/tutorial/](https://docs.oracle.com/javase/tutorial/), Specifically [https://docs.oracle.com/javase/tutorial/java/index.html](https://docs.oracle.com/javase/tutorial/java/index.html)

*Design Patterns: Elements of Reusable Object-Oriented Software* by Erich Gamma, John Vlissides, Ralph Johnson, and Richard Helm
