

SE 350 - Object-Oriented Software Development

Course Overview

Instructor: Stefan Mitsch

? What is this course about?

- Study **principles, techniques, and tools** of object-oriented **modeling, design, and implementation**
- Learn **real-world aspects** of object orientation by putting **concepts into practice**
- Topics
 - Principles of object-oriented programming languages and design
 - UML basics
 - Quality metrics and refactoring of object-oriented design
 - Design patterns and anti-patterns
 - Testing methodologies

What is this course about?

-  Not just programming
 - Identify programming challenges
 - Design programming solutions
 - Write maintainable, extensible, testable, high-quality code
-  Not just in a single language
 - Learn common maintainability and extensibility challenges
 - Identify common mistakes: anti-patterns
 - Learn transferable solutions: patterns

Course objectives and learning outcomes

-  Object-oriented design principles
 - Gain a deep understanding of object-oriented concepts
 - When and how to use concepts
 - Put into practice by designing and developing software applications
-  Visual modeling
 - Learn basic visual modeling with UML class and sequence diagrams
-  Design patterns and object-oriented programming paradigms
 - Identify challenges, learn and apply solutions in terms of well-established coding and architectural patterns
-  Implementation
 - Apply advanced object-oriented programming language features, learn about incremental and iterative development, refactoring, and writing high-quality code

! Prerequisites

- What do you need to know at the start of the class?
 - Understand how to create and manage a software project
 - **Java** and **UML** will be used for examples, assignments, and exams
 - Experience programming in Java; **this is not an introductory Java course**
- Required courses
 - Data Structures II
- Optional courses
 - Software testing
 - Object-oriented modeling

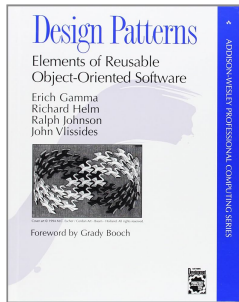


My contact

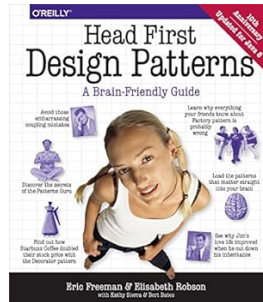
- Phone: 312-362-5938
- Office: CDM 840 (for access: call from reception phone)
- E-mail: smitsch@depaul.edu
- Office hours: Mondays 10:00-11:30am (please schedule an appointment)
- Course forum: D2L (announcements, discussions, sharing files, uploading assignments, grades)

Textbooks

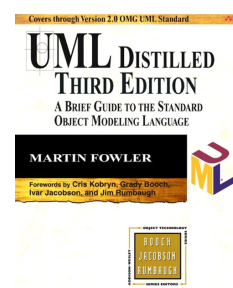
- Mandatory: none
- Useful



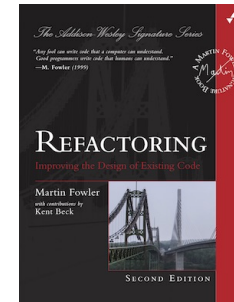
E. Gamma et al.:
Design Patterns



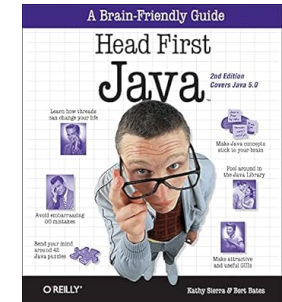
E. Freeman et al.:
Head First
Design Patterns



M. Fowler: UML
Distilled



M. Fowler:
Refactoring



K. Sierra et al.:
Head First Java



Course supplementary material

- [Course website](#)
- D2L
- [Resources](#)
 - Environment setup
 - OOP & Java
 - SOLID design principles
 - UML introduction
 - Design patterns



Syllabus

- [Syllabus](#)
- Our contract for the course
- Please review carefully
- Updates (if any) will be announced on D2L