**COSC436/COSC716: Tentative Schedule** (Spring 2025) **\*:**

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| Note: For the Design patterns, The number in **parentheses** is the chapter number in “[Head First Design Patterns](https://www.oreilly.com/library/view/head-first-design/0596007124/)” ***where applicable***, and the letter in the square brackets is just a reference to the Pattern type, [Creational | Structural | Behavioral]. | | |
| **Week #** | **Date** | **Topic(s)** |
| 1 | Jan. 30 | Course Introduction and Syllabus  Review of Java syntax  Fundamentals of Object-Oriented Programming and Intro to Design Patterns. |
| 2 | Feb. 6 | Intro to Version Control Systems (SVN): Checkout/Update/Commit  Advanced OOP Features in Java (Inheritance and Polymorphism)  ***(Assignment 1) – Creating an Object as Part of a Larger Code Base*** |
| 3 | Feb.13 | Version Control Systems: Branch and Merge  OOP and Functional Features in Java/OOP: via the “[Strategy Pattern](https://refactoring.guru/design-patterns/strategy)” |
| 4 | Feb.20 | OOP and Functional Features in Java/OOP (continued) (Nested/Inner/Anonymous Classes, Lambdas)  (Generic Types / Parametric Polymorphism)  ***(Assignment 2) – Playing a Game*** |
| 5 | Feb.27 | S.O.L.I.D. Principles ([Link 1](https://www.freecodecamp.org/news/solid-principles-explained-in-plain-english/), [Link 2](https://www.baeldung.com/solid-principles))  General UML Overview  ***(Assignment 3) – UML Diagramming.*** |
| 6 | Mar. 6 | “Diamond Problem”  Intro to Design Patterns and “Adventure Game” Discussion  Patterns in the real world.(Ch. 13) |
| 7 | Mar.13 | **Midterm Exam (March 13)**  ***(Assignment 4) – Branches and adding features to an existing “Program”.***  “Open Lab” for Assignment 4 (after the exam) |
| -- | Mar.20 | **Spring Break** |
| 8 | Mar.27 | [Strategy Pattern](https://refactoring.guru/design-patterns/strategy) Revisited (Ch. 1) - [Behavioral]  [Observer Pattern](https://refactoring.guru/design-patterns/observer) (Ch. 2) - [Behavioral]  [Singleton](https://refactoring.guru/design-patterns/singleton) (Ch. 5) - [Creational] |
| 9 | Apr. 3 | [Decorator Pattern](https://refactoring.guru/design-patterns/decorator) (Ch. 3) - [Structural]  [Builder](https://refactoring.guru/design-patterns/builder) Pattern (Ch. 14) - [Creational]  ***(Assignment 5) – Implementing Patterns I*** |
| 10 | Apr. 10 | [Iterator](https://refactoring.guru/design-patterns/iterator) Pattern (Ch. 9) - [Behavioral]  [State Pattern](https://refactoring.guru/design-patterns/state) (Ch. 10) - [Behavioral] - *Nicely compliments the Observer Pattern nicely* |
| 11 | Apr. 17 | [Abstract Factory](https://refactoring.guru/design-patterns/abstract-factory) Pattern (Ch. 4) - [Creational]  [Factory (Factory Method)](https://refactoring.guru/design-patterns/factory-method) Pattern (Ch. 4) - [Creational]  ***(Assignment 6) – Implementing Patterns II*** |
| 12 | Apr. 24 | [Command Pattern](https://refactoring.guru/design-patterns/command) (Ch. 6) - Behavioral]  [Adapter Pattern](https://refactoring.guru/design-patterns/adapter) Ch. (7) - [Structural] |
| 13 | May 1 | [Proxy Pattern](https://refactoring.guru/design-patterns/proxy) (Ch. 11) – [Structural]  [Interpreter Pattern](https://www.tutorialspoint.com/design_pattern/interpreter_pattern.htm) (N/A) – [Behavioral]  MVC / Compound patterns (Ch. 12) [“architectural”] - [Geeks for Geeks](https://www.geeksforgeeks.org/mvc-design-pattern/), [Tutorials Point](https://www.tutorialspoint.com/design_pattern/mvc_pattern.htm)  ***(Assignment 7) – Implementing Patterns III*** |
| 14 | May 8 | [Null Object Pattern](https://www.tutorialspoint.com/design_pattern/null_object_pattern.htm) (Implemented as the [Optional](https://docs.oracle.com/javase/8/docs/api/java/util/Optional.html) type in Java)  [Chain of Responsibility Pattern](https://refactoring.guru/design-patterns/chain-of-responsibility) (Ch. 14) – [Behavioral]  [Visitor](https://refactoring.guru/design-patterns/visitor) (Ch. 14) - [Behavioral]  (Review) |
| **Final Exam** | **May 15** | **5:15-7:15pm YR303** |

\* Please note that all scheduled dates are tentative, and additional topics will be introduced to augment the material in the text. Class progress, university closings, etc., may necessitate schedule alteration. Unless extenuating circumstances arise, the exam dates will remain fixed.