**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 |
| 3 | Feb.13 | OOP and Functional Features in Java/OOP  ***(Assignment 1) – Creating an Object as Part of a Larger Code Base*** |
| 4 | Feb.20 | OOP and Functional Features in Java/OOP (Nested/Inner/Anonymous Classes, Lambdas)  ***(Assignment 2) – Playing a Game*** |
| 5 | Feb.27 | CRC Cards and General UML Overview  ***(Assignment 3) – UML Diagramming.*** |
| 6 | Mar. 6 | 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))  “Diamond Problem”  Intro to Design Patterns and the [Strategy Pattern](https://refactoring.guru/design-patterns/strategy) (Ch. 1)  “Adventure Game” Discussion (and branching/merging).  ***(Assignment 4) – Branches and adding features to an existing “Game Shell”.*** |
| 7 | Mar.13 | Generic Types / Parametric Polymorphism  “Object Equality”  **Exam Review** |
| -- | Mar.20 | **Spring Break** |
| 8 | Mar.27 | **Midterm Exam (March 27)**  (Open Lab – Assignment 4 will be due at the end of the day) |
| 9 | Apr. 3 | [Observer Pattern](https://refactoring.guru/design-patterns/observer) (Ch. 2) - [Behavioral]  [Adapter Pattern](https://refactoring.guru/design-patterns/adapter) (Ch. 7) - [Structural] (Adapters and Observers are often used together).  ***(Assignment 5) – Implementing Patterns I (Making Objects “Observable”)*** |
| 10 | Apr. 10 | [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]  [Builder](https://refactoring.guru/design-patterns/builder) Pattern (Ch. 14) - [Creational] |
| 11 | Apr. 17 | [Decorator Pattern](https://refactoring.guru/design-patterns/decorator) (Ch. 3) - [Structural]  [State Pattern](https://refactoring.guru/design-patterns/state) (Ch. 10) - [Behavioral]  ***(Assignment 6) – Implementing Patterns II (Implementing State)*** |
| 12 | Apr. 24 | [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)  [Iterator](https://refactoring.guru/design-patterns/iterator) Pattern (Ch. 9) - [Behavioral] |
| 13 | May 1 | [Singleton](https://refactoring.guru/design-patterns/singleton) (Ch. 5) - [Creational]  [Command Pattern](https://refactoring.guru/design-patterns/command) (Ch. 6) - [Behavioral]  [Proxy Pattern](https://refactoring.guru/design-patterns/proxy) (Ch. 11) – [Structural]  ***POSTPONED: (Assignment 6) – Implementing Patterns II (Decorating Objects)*** |
| 14 | May 8 | 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)  [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.