

# CSS 502B Data Structures and Object-oriented Programming II Winter 2018

## University of Washington Bothell, STEM, Computing & Software Systems

### Tentative Schedule (subject to change)

Note that not all topics in a chapter where a whole chapter is listed will be covered. Use the topic list as a guide. The edition, 6<sup>th</sup> or 7<sup>th</sup>, is in parentheses. For math topics, use the notes and supplemental material, or find the material in the math books.

| Week | Date               | Topic                                                                                                                                                                                  | Reading                                                                                                            | Assignments                                   |
|------|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| 1    | Jan 3              | Preliminaries,<br>General Trees,<br>Binary Trees,<br>Huffman encoding                                                                                                                  | Chapter 15 (6 <sup>th</sup> and 7 <sup>th</sup> )<br><br>Notes                                                     |                                               |
| 2    | Jan 10             | Binary Search Tree,<br>Priority Queues,<br>Binary Heaps                                                                                                                                | Chapter 13.3, 17 (6 <sup>th</sup> and 7 <sup>th</sup> )                                                            | Hw 1 due                                      |
|      | Jan 12             |                                                                                                                                                                                        |                                                                                                                    | Lab 1 due                                     |
| 3    | Jan 17             | Graphs,<br>Depth/Breadth-first algorithms                                                                                                                                              | Chapter 20 (partial, 6 <sup>th</sup> ),<br>20.1-20.3 (7 <sup>th</sup> )                                            | Hw 2 due                                      |
|      | Jan 20             |                                                                                                                                                                                        |                                                                                                                    | Lab 2 due                                     |
| 4    | Jan 24             | Dijkstra Shortest Path algorithm                                                                                                                                                       | Section 20.4.4 (7 <sup>th</sup> )                                                                                  | Hw 3 due                                      |
| 5    | Jan 31             | Balanced Trees - AVL, 2-3, B-tree                                                                                                                                                      | Section 19.1, 19.2.1-2.3, 19.5,<br>21.3.3 (6 <sup>th</sup> ),<br>19.1-19.2, 19.3.1-3.3, 21.2.5 (7 <sup>th</sup> )  | Hw 4 due                                      |
|      | Feb 2              |                                                                                                                                                                                        |                                                                                                                    | Lab 3 due                                     |
| 6    | Feb 7              | <b>Midterm exam</b>                                                                                                                                                                    |                                                                                                                    |                                               |
| 7    | Feb 14             | Object-oriented Design/Programming<br>Inheritance/Polymorphism,<br>Factory                                                                                                             | Section 1.3 (6 <sup>th</sup> and 7 <sup>th</sup> )<br>Interludes 1.4-1.5, 2.4, 5 (7 <sup>th</sup> )<br>Sample code |                                               |
| 8    | Feb 20<br>Feb 21   | <b>Last day to drop</b><br>Inheritance / Polymorphism –<br>under the hood,<br>Hash - open, closed (linear/quadratic<br>probing, double hashing), Efficiency<br><br>Lab 4 Design Review | Notes<br><br>Chapter 18 (6 <sup>th</sup> ),<br>Section 18.4 – 4.1-4.5 (7 <sup>th</sup> )                           | Lab 4 design due                              |
| 9    | Feb 28             | Languages Introduction,<br>Regular expressions                                                                                                                                         | Notes<br>Notes                                                                                                     | Hw 5 due                                      |
| 10   | Mar 7<br><br>Mar 9 | Context-free Grammars,<br><br>Turing Machines, Last day stuff                                                                                                                          | Notes<br>Section 5.1 (6 <sup>th</sup> and 7 <sup>th</sup> )<br>Notes                                               | Hw 6 due<br><br>Lab 4 due -<br>implementation |
| 11   | Mar 14             | <b>Final exam (in class) (start at 5:40pm)</b>                                                                                                                                         |                                                                                                                    |                                               |