CPSC 292 – Lecture Tentative Schedule*

*Subject to change.

Date: Lecture Topic | Pre-class Work Items | Post-class Work Items | CLO covered
Davies: <u>The Book of R</u> by Tilman Davies; Chang: <u>The R Graphics Cookbook</u> by Winston Chang.

Unit 1: Beginnings

Mon Aug 30:   L1.1: Introduction to the Course, Icebreakers. Why Learn R?
            None | None | CLO 1–3 discussed

Wed Sept 1:   L1.2: How Computers Work ●
            None | Assignments 1.1, 1.2, 1.3 | 1.1.8, 1.2.1, 2.1.1–2.1.3

Fri Sept 3:   L1.3: Computer Games
            None | Assignment 1.4 | 1.2.1

Mon Sept 6:   Labor Day (no class)

Wed Sept 8:   L1.4: Hands-on Introduction to R and RStudio
            Davies Ch. 1–2 | Assignment 1.5 | 1.1.1–1.1.7, 2.2.1

Fri Sept 10:   L1.5: Types of Data
            Davies Ch. 4 | Assignment 1.6 | 1.1.11

Mon Sept 13:   L1.6: Vectors
            Davies Ch. 2 | Assignment 1.7 | 1.1.9–1.1.11, 1.1.12

Wed Sept 15:   L1.7: Matrices and Arrays
            Davies Ch. 3 | Assignments 1.8, 1.9 | 1.1.9–1.1.12

Fri Sept 17:   L1.8: Lists and Data Frames
            Davies Ch. 5 | Assignments 1.10, 1.11 | 1.1.11–1.1.12

Mon Sept 20:   L1.9: Factors, Special Values, and Class Coercion
            Davies Ch. 6 | Assignment 1.12, 1.13 | 1.1.6, 1.2.1, 2.2.1

Wed Sept 22:   Skill Check 1 (SK1): Basics of R
            Review assignments | Complete Skill Check | CLO 1.1, 1.2.1, 2.1.1–2.1.3, 2.2.1, 3.5

Unit 2: Exploring Data

Fri Sept 24: Finding Meaning in Data, Discussing Projects
Storytelling and Data Science | Look over available data sets, choose one | CLO 3 discussed

Mon Sept 27: Basic Plotting with RMarkdown
Davies Ch. 7, Chang Ch. 1–2 | Create RMarkdown Notebook for your project | 2.2.1, 2.2.2, 2.2.4, 3.2

Wed Sept 29: Reading and Writing Files, Data Cleaning, More Plotting
Davies Ch. 8, Chang Ch. 1–2 | (open) | 3.1

Fri Oct 1: Grammar of Graphics Basics
Chang Appendix A | (open) | 3.3

Mon Oct 4: Skill Check 2.1 (SK2.1): Student presentation on graph types
Assigned Chang Chapter | Presenters post code and slides on Github | 3.3, 3.5

Wed Oct 6: Skill Check 2.1 (SK2.1): Student presentation on graph types
Assigned Chang Chapter | Presenters post code and slides on Github | 3.3, 3.5

Fri Oct 8: Basic Data Analysis
(open) | (open) | 3.4

Mon Oct 11: How We See •
(open) | (open) | 3.6.1–3.6.4

Wed Oct 13: Basics of Data Visualization | McCandless TED talk | (open) | 3.6.2–3.6.6

Fri Oct 15: Critiquing Visualizations
(open) | Prepare projects for critiques | 3.1–3.6

Mon Oct 18: Project 1 (P1): Draft Visualizations 1; Skill Check 2.2 (SK2.2): Providing Critiques
Set 1 prepares for critique | Work on incorporating comments | 3.1–3.6

Wed Oct 20: Project 1 (P1): Draft Visualizations 2; Skill Check 2.2 (SK2.2): Providing Critiques
Set 2 prepares for critique | Work on incorporating comments, Projects due by Mon. Oct. 18 at 5 pm | 3.1–3.6

Unit 3: Skill Building

Fri Oct 22:   Best Practices Discussion ●
Assignment 3.1 (Wilson et al. 2017 or Stewart et al. 2017) | none | 2.1.1, 2.1.4, 2.2.1–2.2.3

Mon Oct 25:   Version Control with git ●
(open) | Assignment 3.2 | 2.3.1, 2.3.3, 2.3.4

Wed Oct 27:   Managing a project with Github
(open) | Create a Github repository for your project | 2.3.2, 2.3.3, 2.3.4

Fri Oct 29:   Writing Your Own Functions
(open) | Function assignments 1 & 2 | 1.2.1–1.2.5, 3.5

Mon Nov 1:   Flow Control: Conditionals
(open) | Flow control assignments 1 & 2 | 1.2.1, 1.2.7

Wed Nov 3:   Flow Control: Looping
Code Academy: Loops | Flow control assignments 3 & 4 | 1.2.1, 1.2.6, 1.2.8

Fri Nov 5:   Flow Control: Putting into practice through refactoring
(open) | Flow control assignments 1 & 2 | 1.2.9, 1.2.10, 1.3.3, 1.3.7

Mon Nov 8:   Debugging and Exception Handling
(open) | Function assignments 3 & 4 | 1.2.4, 1.2.5, 1.2.11, 1.3.9, 1.3.10, 3.5

Wed Nov 10:   Skill Check 3 (SK3): Building Better Code
(open) | Complete Skill Check | 1.2, 1.3.3, 1.3.9, 3.5

Fri Nov 12:   Refactoring Day!
None | Prepare a short (5 min) presentation on how you've improved your project code | 1.3.7, 1.3.9, 1.3.10, 3.5

Mon Nov 15:   Project 2 (P2): Assessing Project Improvement
None | Complete the Skill Check | 1.3.9, 1.3.10, 2.2.1, 2.2.2, 2.2.4, 2.3.4, 3.5

Unit 4: Communicating Results

Wed Nov 17: Communicating Science, why bother?
(open) | (open) | 3.7.1

Fri Nov 19: Scientific Papers and Grant Proposals
(open) | (open) | 3.7.2

Mon Nov 22: Oral and Poster Presentations
(open) | Choose projects to complete | 3.7.3

Wed Nov 24: Thanksgiving (no class)

Fri Nov 26: Thanksgiving (no class)

Mon Nov 29: Thanksgiving (no class)

Wed Dec 1: Creating and managing citations with RMarkdown
(open) | RMarkdown assignment 1 | 2.2.1, 2.2.4, 3.7.2

Fri Dec 3: Making Your Code Reproducible
(open) | RMarkdown assignment 2 | 1.3.4, 1.3.5

Mon Dec 6: Skill Check 4.1 (SK4.1): Work on Final Report
None | None | 1.3.1–1.3.10, 2.1.4, 2.2, 2.3, 3.1, 3.3, 3.5, 3.7.1, 3.7.2

Wed Dec 8: Open!

Final Exam periods:
Section 01 − Thursday Dec. 16th 8:00 − 10:30 am
Section 02 − Thursday Dec. 16th 1:30 − 4:00 pm
Skill Check 4.2 (SK4.2): Evaluating Peer Code & Presentations
Project 3: Poster/Oral Presentations