CPSC 292 – Lecture & Assignment Schedule

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

Wed Aug 30: 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 1: L1.3: Computer Games (no video)
None | Assignment 1.4 | 1.2.1

Mon Sept 4: Labor Day (no class)

Wed Sept 6: 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 8: L1.5: Types of Data
Davies Ch. 4 | Assignment 1.6 | 1.1.11

Mon Sept 11: L1.6: Vectors
Davies Ch. 2 | Assignment 1.7 | 1.1.9–1.1.11, 1.1.12

Wed Sept 13: L1.7: Matrices and Arrays
Davies Ch. 3 | Assignments 1.8, 1.9 | 1.1.9–1.1.12

Fri Sept 15: L1.8: Lists and Data Frames
Davies Ch. 5 | Assignments 1.10, 1.11 | 1.1.11–1.1.12

Mon Sept 18: 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 20: L1.10: Troubleshooting Problems
none | Assignment 1.14 | 1.1.6, 1.2.1, 2.2.1

Fri Sept 22: *L2.1: Finding Meaning in Data, Discussing Projects (video: <u>McCandless TED Talk</u>)*
<u>Storytelling and Data Science</u> | Find a data set for project | CLO 3 discussed

Mon Sept 25: Skill Check 1 (SK1): Basics of R (no video)
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 22: L2.1: Finding Meaning in Data, Discussing Projects (video: McCandless TED Talk)
Storytelling and Data Science | Find a data set for project | CLO 3 discussed

Mon Sept 25: *Skill Check 1 (SK1): Basics of R (no video)*

Wed Sept 27: L2.2: Basic Plotting with R Markdown
Davies Ch. 7.1–7.3, Chang Ch. 1–2 | Assignment 2.1 | 2.2.1, 2.2.2, 2.2.4, 3.2

Fri Sept 29: L2.3: Reading and Writing Files, Data Cleaning
Davies Ch. 8, Chang Ch. 1–2 | Assignment 2.2 | 3.1

Mon Oct 2: L2.4: Scripting & Troubleshooting Compound Code
None | Assignment 2.3 | 2.2.1, 2.2.2, 3.5.1, 3.5.2

Wed Oct 4: L2.5: Basic Data Analysis
Davies Ch. 13 | Assignment 2.4 | 3.4

Fri Oct 6: L2.6: Grammar of Graphics Basics
Davies Ch. 7.4, Chang Appendix A | Work on SK2.1 | 3.3

Mon Oct 9: Skill Check 2.1 (SK2.1): Student presentation on graph types (no video)
Assigned Chang Chapter | None | 3.3, 3.5

Wed Oct 11: Skill Check 2.1 (SK2.1): Student presentation on graph types (no video)
Assigned Chang Chapter | None | 3.3, 3.5

Fri Oct 13: L2.7: How We See (no video)
Katsnelson 2021 | None | 3.6.1–3.6.4

Mon Oct 16: L2.8: Basics of Data Visualization (no video)
Davies Ch. 14 | Assignment 2.5 | 3.6.5

Wed Oct 18: L2.9: Critiquing Visualizations (no video)
None | Prepare projects for critiques | 3.1–3.6

Fri Oct 20: Project 1 (P1): Draft Visualizations 1; Skill Check 2.2 (SK2.2): Providing Critiques (no video)
Set 1 prepares for critique | Work on incorporating comments | 3.1–3.6

Mon Oct 23: Project 1 (P1): Draft Visualizations 2; Skill Check 2.2 (SK2.2): Providing Critiques (no video)
Set 2 prepares for critique | Work on incorporating comments, Project revision due by Mon. Oct. 31 at 11:59 pm | 3.1–3.6

Unit 3: Skill Building

Wed Oct 25:   L3.1: Best Practices Discussion (no video)
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

Fri Oct 27:   L3.2: Writing Your Own Functions
Davies Ch. 9 | Assignment 3.2 | 1.2.1–1.2.5, 3.5

Mon Oct 30:   L3.3: Flow Control – Conditionals
Davies Ch. 10.1 | Assignment 3.3 | 1.2.1, 1.2.7

Wed Nov 1:   L3.4: Flow Control – Looping
Davies Ch. 10.2, Code Academy: Loops | Assignment 3.4 | 1.2.1, 1.2.6, 1.2.8

Fri Nov 3:   L3.5: Flow Control – Practice Problems (no video)
Davies Ch. 10.3 | Assignment 3.5 | 1.2.1, 1.2.6–1.2.8

Mon Nov 6:   L3.6: Debugging
Davies Ch. 10.3, Ch. 12.1 | None | 1.2.1, 1.2.6–1.2.8

Wed Nov 8:   L3.7: When, Why, and How to Refactor Code
None | Assignment 3.6 | 1.2.9, 1.2.10, 1.3.3, 1.3.7

Fri Nov 10:   L3.8: Documenting Your Code
Code Documentation: The Complete Beginner's Guide |
None | 2.2.2, 2.2.4, 3.5

Mon Nov 13:   Refactoring Day! (no video)
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

Wed Nov 15:   Project 2 (P2): Assessing Project Improvement (no video)
None | Prepare for Skill Check | 1.3.9, 1.3.10, 2.2.1, 2.2.2, 2.2.4, 2.3.4, 3.5

Fri Nov 17:   Skill Check 3 (SK3): Building Better Code (no video)
None | None | 1.2, 1.3.3, 1.3.9, 3.5

Mon Nov 20:   Thanksgiving (no class)

Wed Nov 22:   Thanksgiving (no class)

Fri Nov 24:   Thanksgiving (no class)

Unit 4: Communicating Results

Mon Nov 27: Communicating Science Effectively (no video)
None | Assignment 4.1 | 3.6.5, 3.6.6, 3.7.1

Wed Nov 29: Creating and managing citations with RMarkdown
None | Assignment 4.2 | 2.2.1, 2.2.4, 3.7.2

Fri Dec 1: Poster Presentations
None | None | 3.7.3

Mon Dec 4: Scientific Papers and Grant Proposals
None | None | 3.7.2

Wed Dec 6: Work on Final Report/Project
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

Fri Dec 8: Work on Final Report/Project
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

Final Exam periods:

- Section 01 – Friday December 15, 2023, 10:45 am – 1:15 pm

- Section 02 – Monday December 11, 2023, 8:00 – 10:30 am

- Section 03 – Thursday December 14, 2023, 10:45 am – 1:15 pm