STAT 304: R for Statisics II

Course outcome: Students will write structured R programs using functions, conditional expressions, and loops. They will manipulate matrices and extract data from text.

Unit	Objectives Students will:	Assessment	Read, View, Do
1 **Write functions**	1. Implement functions to structure code and make it reusable. 2. Recognize the program execution steps through a function call. 3. Define properties of parameters and local variables.	HW1, HW2, HW3	1function.pdf & lecture Quiz 1
2 **Conditional Expressions**	Write conditional expressions to control code branching: 1. `if`, `if ... else`, and `if ... else if ... else` statements 2. `ifelse()` function call.	HW1, HW2, HW3	2conditional.pdf & lecture Quiz 2
3 **Loops**	Write a loop to repeat a code block: 1. a predetermined number of times 2. zero or more times 3. one or more times.	HW1, HW2, HW3	3loop.pdf & lecture Quiz 3 ticTacToe.R
4 `apply()` **Functions**	Use the `apply()` family of functions to avoid explicit loops.	HW2, HW3	4apply.pdf & lecture Quiz 4
5 **Arrays and Matrices**	1. Create and extract slices of arrays and matrices. 2. Solve $A\vec{x} = \vec{b}$ and be aware of the Matrix package for linear algebra.	HW2, HW3	5arrayMatrix.pdf & lecture Quiz 5
6 **Extract data from text**	1. Extract and clean data from text via regular expressions, pattern matching, and string splitting. 2. Do web scraping.	HW3	6pattern.pdf & lecture Quiz 6 nfl.R

Prerequisite: STAT 303