**Coursera Course: Reproducible Templates – DRAFT OUTLINE**

1. Module 1: Introduction to Reproducible Research and Dynamic Documentation
   1. Objectives:
      1. Explain why reproducibility is important.
      2. Recognize what components can be reproducible.
      3. Recognize landmark examples that influenced the emphasis of reproducibility in the last decade.
   2. Lessons:
      1. Lesson 1: History and Importance of Reproducibility and Transparency
      2. Lesson 2: Dynamic documentation and Literate Programming
      3. Lesson 3: Examples of reproducible templates and documents across various fields and applications
      4. Lesson 4: Components of Reproducibility
      5. Lesson 5: Getting Started Logistics (part 1) – R and RStudio
      6. Lesson 6: Getting Started Logistics (part 2) – Git and Github
      7. Lesson 7: Put the pieces together – create first document
   3. Evaluation:
      1. Practice Quiz
      2. Graded Quiz
2. Module 2: Rmarkdown: Syntax, Document, and Presentation Formats
   1. Objectives:
      1. Create and modify documents in three formats (HTML, PDF, and DOC).
      2. Create and modify a slide presentation format.
      3. Develop a basic book format.
   2. Lessons:
      1. Lesson 1: Document Components – RMarkdown and YAML
      2. Lesson 2: Document Formats – Parameters, Options, and Syntax
      3. Lesson 3: Document Elements – formatting text, inserting images, tables and other objects
      4. Lesson 4: Presentation Formats – slideshow structure, options and syntax
      5. Lesson 5: Book Format – organizing multiple documents
      6. Lesson 6: Exercise Overview – for Graded Assignment
   3. Evaluation:
      1. Practice Quiz,
      2. Graded Assignment
3. Module 3: Rmarkdown Templates: Processing and Customizing
   1. Objectives:
      1. Demonstrate how to modify a document with YAML parameters.
      2. Identify where templates can be modularized.
      3. Prepare a parameterized report.
   2. Lessons:
      1. Lesson 1: Customize HTML document
      2. Lesson 2: Customize WORD document
      3. Lesson 3: Create document with parameters
      4. Lesson 4: Working with R packages and Developing an Initial R Script
      5. Lesson 5: Building a Document Template – part 1
      6. Lesson 6: Building a Document Template – part 2
      7. Lesson 7: Adding and Using parameters in a Document Template
      8. Lesson 4: Processing document parameters – interactively and command line
      9. Lesson 5: Create Template with Fixed Options– customize sections and layout
      10. Lesson 6: Create Template with Parameters – customize document content based on parameters
      11. Lesson 7: Utilize Parameters for Batch Processing Multiple Document
   3. Evaluation:
      1. Practice Quiz
      2. Graded Quiz
4. Module 4: Leveraging Custom Templates from Leading Scientific Journals
   1. Objectives:
      1. Use existing custom templates for journal publishing.
      2. Recognize the components for a template package.
      3. Create a package with a template.
   2. Lessons:
      1. Lesson 1: ~~Examples and Demonstrations of Existing Templates~~ Examples and Demonstrations of R Packages with R Markdown Templates
         1. Lesson 2: Installing and Using Reproducible Templates – merge with lesson 1
         2. Lesson 4: Demonstration – Create a ~~nd Customize~~ Tufte Style Document – merged with lesson 1
      2. Lesson ~~3~~2: ~~Exploring Existing Template Components and Packages~~ Exploring R Packages with R Markdown Templates and the Associated Components and Files
      3. Lesson ~~5~~3: Create an R Markdown Template and Share it
         1. – simple sharing of RMD document – we’ll adapt from the steak survey document in Module 3 – AND ADD a few simple citations
      4. Lesson ~~6~~4: ~~Create, Install and Use Template Package~~ Create an R Package with an R Markdown Template
      5. Lesson 7: Exercise Overview – for Graded Assignment
   3. Evaluation:
      1. Practice Quiz
      2. Graded Assignment
5. Module 5: Working in Teams and Disseminating Templates and Reports
   1. Objectives:
      1. Recognize the important components supporting your final product.
      2. List examples of dissemination platforms.
      3. Select a project or product that you want to reproduce and create a template for it.
   2. Lessons:
      1. Lesson 1: Organize the Components – Files, Documents, and Codes
      2. Lesson 2: Communicating to your “team” – components, pipeline processing steps, readme, and demos
      3. Lesson 3: Deployment via RPubs
      4. Lesson 4: Deployment via Github – demo Rmarkdown webpages and mention blogdown
      5. Lesson 5: Deployment via package
      6. Lesson 6: Exercise Overview – Graded Quiz/Assignment
   3. Evaluation:
      1. Practice Quiz
      2. Graded Quiz/Peer-reviewed assignment