



University of Sri Jayewardenepura  
Faculty of Applied Sciences  
Department of Statistics

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**Batch: 2016/2017**

**Year: 2020**

**Semester: First Semester**

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**Course Unit: STA 326 2.0 Programming and Data Analysis with R**

**Type of the course unit: Core for special degree students/ Optional for others**

**Pre-Requisites:**

*STA 114 2.0 Probability and Distribution Theory I, STA 123 2.0 Probability and Distribution Theory II, STA 124 1.5 Data Analysis I, STA 226 1.5 Data Analysis II*

**Workload:**

*100 learning hours. This includes approximately 30 hours of lectures and additional time spent by the student on self-learning, assignments and assessments.*

**Course Objective(s):**

- To introduce R programming for data science applications.
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**Course Contents:**

1. R basics: Objects in R, Data types, Operations, Installing packages, Control structures, Piping
2. Writing functions in R
3. Data analysis with the tidyverse
  - 3.1. Data import and export
  - 3.2. Data wrangling: Tidy data principles, Reshaping data into tidy form, Data transformation
  - 3.3. Data visualization: The grammar of graphics
  - 3.4. Statistical modelling and inference
  - 3.5. Communication: Dynamic reproducible reporting

**Learning Outcomes:** At the end of this course, the student should be able to:

- First learning outcome
- Second learning outcome

**Method of Assessment:**

- Mid-semester examination: 20%
- Final examination: 80%

**Recommended Readings:**

- Course website: Everything you want to know about the course, and everything you will need for the course (links to weekly reading, tutorials and lecture materials) will be posted at [hellor.netlify.com](http://hellor.netlify.com)  
Author: Thiyanga Talagala
- Title: R for Data Science  
Author(s): Hadley Wickham and Garrett Grolemund  
Publisher: O'REILLY  
This book is available online for free. Visit <https://r4ds.had.co.nz/>

**Lecturer in Charge:**

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*Note: The course can be dropped on or before xx.*