Week - Topics	2019 Fall Term	QUIZ	Practice	Homework
1) Intro – Data and Code	**20.Sept**	-	-	Linux – webminal
2) Introduction to Linux and Python	**27.Sept**	Linux – Primary Codes	Linux - Basic Training	Download Filezilla
3) Data Types, Download and NCL	**4.Oct**	-	wget, ftp, NCL	Datacamp:Intro to R
4) Introduction to R	**11.Oct**	R – General	R - Basic Math	Udemy : Vector
5) R, The Language – Part 1	**18.Oct**	R – Vectors	R – Indexing Vectors	edX, Udemy: Matrice-Array
6) R, The Language – Part 1	**25.Oct**	R – Matrice and Array	R – String Manipulation	edX, Udemy: List-Data Frame
7) R, The Language – Part 3	**1.Nov**	R – List and Data Frame	R – Practice	**Mid-Term Project**
8) ITU Fall-Term Break (no class)	**8.Nov**	-	-	-
9) R Programming – Part 1	**15.Nov**	-	R – "if" condition	Udemy : Condition and loop
10) R Programming – Part 1	**22.Nov**	R – "if" and "for"	R – "if" and "for" nested	Datacamp: import and plot
11) R Data Import and Plot	**29.Nov**	R – read and plot	R – Read and Write a New File	Datacamp: corr and reg
12) R Statistics	**6.Dec**	R – sum, mean and hist	R – Data Summary	Udemy : Statistics
13) R Probability	**13.Dec**	R – Distributions	R – Distribution	Datacamp: dplyr, ggplot2
14) R Advanced, Data Analaysis	**20.Dec**	R – dplyr and ggplot2 package	R – Data Analysis	Prepare input data
15) R Final Project	**27.Dec**	-	**Final Project**	-

Software Tools for Earth & Environmental Sciences – **2019 Fall Term** (16 Sept-27 Dec, Total : 15 Week)

1st Week – 20 Sept **Data and Code** • Syllabus • Data • Coding • New Accounts	**2nd Week – 27 Sept** **Linux and Python** • Terminal • Script and vi Editor • Anaconda-Jupyter Python	**3rd Week – 4 Oct** **Data Types, Download and NCL** • Data Types • Data Download • NCL	**4th Week –11 Oct** **Introduction to R** • Getting Started • Preview of Course • Introduction to R
5th Week – 18 Oct **R, The Language – Part 1** • Class • Types of Variables • Vectors	**6th Week – 25 Oct** **R, The Language – Part 2** • Matrices and Arrays • Strings • Factors	**7th Week – 1 Nov** **R, The Language – Part 3** • List • Data Frames • **Midterm Project**	**8th Week – 8 Nov** **ITU Fall-Term Break** **(no class)**
9th Week – 15 Nov **R Programming – Part 1** • Calling Function • Conditional statements	**10th Week – 22 Nov** **R Programming – Part 2** • Loops • Other Control Flow Mechanism	**11th Week – 29 Nov** **R, Data Import and Plot** • Reading and Writing Data • Basic Plotting - Graphics	**12th Week – 6 Dec** **R, Statistics** • Elementary Statistics • Basic Data Visualization
13th Week – 13 Dec **R, Probability** • Elementary Probability • Probability Distributions	**14th Week – 20 Dec** **R, Advance** • Data Analysis • readr, dplyr, tidyr • ggplot2, lattice	**15th Week – 27 Dec** **R - Final Project** **Workshop**	

BOOK

Python

- Beginning Python
- Beginning Programming with Python for Dummies
- Introduction to Python Programming
- Python, And Introduction to Programming
- Python Basics, A Self-Teaching Introduction
- Python Crash Course, A Hands-On, Project-Based, Introduction to Programming
- Python for Data Analaysis

R

- Efficient R Programming
- Learn R for Applied Statistics
- Learning R
- Practical Data Science with R
- R forData Science
- R for Dummies
- R for Everyone, Advanced Analysis and Graphics
- R in Action, Data Analaysis and Graphics with R
- (R Official PDF) – An Introduction to R
- The Art of R Programming
- The Book of R, A First Course in Programming and Statistics

Course and Website

Python

- https://www.learnpython.org/
- https://www.anaconda.com/wp-content/uploads/2019/01/2018-08-AnacondaTraining-Visualization-and-Dashboards.pdf
- http://www.data-analysis-in-python.org/
- https://www.udemy.com/
- https://www.datacamp.com/home
- https://courses.edx.org/

R

- http://www.r-tutor.com/r-introduction
- https://www.r-bloggers.com/
- https://cran.r-project.org/
- http://www.datasciencemadesimple.com/r-tutorial/
- https://www.udemy.com/
- https://www.datacamp.com/home
- https://courses.edx.org/
- https://www.rdocumentation.org/
- https://www.datacamp.com/community/tags/r-programming
- https://rmarkdown.rstudio.com/
- https://shiny.rstudio.com/tutorial/
- https://rstudio.cloud/
- https://commonmark.org/help/tutorial/

Homework

1- Online Linux account, and do exersices of 1st and 2nd lessons
https://www.webminal.org/

2- Linux script – go create folder, copy paste move and echo the file
Download Filezilla ; https://filezilla-project.org/

3- Download R and R Studio, setup, create a new project
https://cran.rstudio.com and https://www.rstudio.com
Datacamp – Introduction to R
https://www.datacamp.com/courses/free-introduction-to-r

4- Udemy – Introduction to R, Part 1, 2 and 3 (section 14 to 19)
https://www.udemy.com/course/introduction-to-r/

5- edX – Introduction to R for Data Science, Part 2 and 3
https://www.edx.org/course/introduction-to-r-for-data-science-3
Udemy – Introduction to R, Part 3 (section 20-21)
https://www.udemy.com/course/introduction-to-r/

6- Udemy – Introduction to R, Part 3 (section 22-25)
https://www.udemy.com/course/introduction-to-r/
edX – Introduction to R for Data Science, Part 5 and 6
https://www.edx.org/course/introduction-to-r-for-data-science-3

7- Udemy – Introduction to R Chapter 6
https://www.udemy.com/course/introduction-to-r/

8- Datacamp – Importing Data in R, Part 1
https://www.datacamp.com/courses/importing-data-in-r-part-1
Udemy – Introduction to R Chapter 4
https://www.udemy.com/course/introduction-to-r/
Datacamp – Data visualization in R
https://www.datacamp.com/courses/data-visualization-in-r

9- Datacamp – Correlation and Regression
https://www.datacamp.com/courses/correlation-and-regression

10- Udemy – Introduction to R, Chapter 7, Statistics Section 49 to 52
https://www.udemy.com/course/introduction-to-r/

11- Datacamp – Data Manipulation with dplyr in R
https://www.datacamp.com/courses/data-manipulation-with-dplyr-in-r
Datacamp – Data visualization with ggplot2
https://www.datacamp.com/courses/data-visualization-with-ggplot2-1

Advance;

- Datacamp : Data Visualization in R with lattice
https://www.datacamp.com/courses/data-visualization-in-r-with-lattice
- Udacity : Data Analysis with R
https://www.udacity.com/course/data-analysis-with-r--ud651
- Datacamp : Introduction to Function Writing in R
https://www.datacamp.com/courses/introduction-to-function-writing-in-r
- Datacamp : Developing R Packages
https://www.datacamp.com/courses/developing-r-packages
- Introduction to Data Science with R - Data Analysis Part 1
https://www.youtube.com/watch?v=32o0DnuRjfg

QUIZ

1- Linux – general information and basic codes
2- R – General information, operators, basic codes
3- R – Vectors
4- R – Matrices, Arrays
5- R – List and Data Frame
6- R – if and for
7- R – reading and plotting the file
8- R – sum, mean and hist
9- R – Distributions
10- R – dplyr and ggplot2 Packages

PROJECT

Midterm - R

⇒ Print variables and dimensions
⇒ Choose a parameter
⇒ Manipulating, Indexing and Filtering
⇒ Use dplyr Package
⇒ Save and mail the script

Final - R

⇒ Prepare your input data
  - txt, csv, nc

⇒ Create a new R project and a new R script
⇒ Install Packages
⇒ Set directory and go to folder
⇒ Open folder and print list of files
⇒ Open file, read and print variables and dimensions
⇒ Convert data types
  - Data frame to list
  - List to vector

⇒ Aplly conditions and loops
  - Indexing
  - Manipulating
  - Filtering

⇒ Data analysis
  - Statically – plot, summary, histogram
  - Probability distribution
  - Time series

⇒ Save the script and mail me

1st Week — Intro - Data and Code (20 Sept)

Goal(s) : General info about Earth Sciences, Data and Coding. Intro to academic tools.

1st-hour of Class :

DATA

- **What is the Data**
- **Data Collection and Production**
- **Data Types, Formats and Source**
- **Popular Terms About Data**
  - ⇒ Data Science
  - ⇒ Data Analaysis
  - ⇒ Big Data
  - ⇒ Data Mining
  - ⇒ Data Assimilation and Manipulation
- **Obtain and Get the Data**

2nd-hour of Class :

CODE

- **Operational Systems**
  - ⇒ Unix/Linux
- **Programming Languages**
  - ⇒ C, Fortran, JavaScript, Python, R, NCL
- **Fields of Programming**
- **Popular Terms About Programming**
  - ⇒ Artifical Intelligent
  - ⇒ Machine Learning
  - ⇒ Deep Learning
  - ⇒ Internet of Things
- **Interpretation and Visualization**
- **Algorithm, Simulation and Modeling**

3rd-hour of Class :

NEW ACCOUNTS

- **Github, Researchgate, DOI Code, ORCID, Overleaf(LaTeX)**
- **Mendeley, Panoply, Sublime Text, Filezilla**
- **ArcGIS, QGIS**
- **Anaconda, Cygwin, Jupyter, R Studio, NCL**
- **Meted, Coursera, Udemy, Datacamp, Edx, Khanacademy**
- **Stackoverflow, Wolfram-alpha, dropbox, wetransfer**

Next Week

- TOPIC : Introduction to Linux -Terminal, Vi Editor, Script
- HOMEWORK : webminal.org account, and do exersices of 1st and 2nd lessons
- QUIZ : Linux – general information and basic codes

2nd Week — Introduction to Linux — (27 Sept)

1.QUIZ : Linux – general information and basic codes

Goal(s) : General information about Linux, terminal, and Python (Jupyter)

1.HOMEWORK : Linux excersice.

1st-hour of Class :

LINUX – Terminal

- **History**
- **Terminal**
  - ⇒ Root, Folder, File
  - ⇒ Environments, Path
- **Command**
  - ⇒ pwd, ls, mkdir
  - ⇒ cd, rm, ls, chmod

2nd-hour of Class :

LINUX – vi Editor and script

- **vi Editor**
  - ⇒ vi command and other editors
- **Print Commands**
  - ⇒ echo, touch
  - ⇒ cat, grep
  - ⇒ head, tail
- **Edit Text**
  - ⇒ insert, esc
  - ⇒ quit, write, delete
- **Script Types**
- **Edit Text**
- **Create, Edit and run**

3rd-hour of Class :

Python

- **Programming Language**
- **History and Concept of Python**
- **Fields of usage**
- **Anaconda Jupyer**

Reminder : linux.org - for more excersice and examples for linux training

Next Week

- TOPIC : Data Types, Download and NCL (or Latex)
- HOMEWORK : Linux script - go create folder, copy paste move and echo the file
  : Download Filezilla, glance at NCL plot script. (or Overleaf-latex part1)

3rd Week — Data Types, Download and NCL (4 Oct)

Goal(s) : Different types and dimensions of data, download. Intro to NCL

2.HOMEWORK : Linux script, Filezilla, NCL plot example (Or Overleaf-Latex Part 1)

1st-hour of Class :

DATA TYPES

- **Data Formation**
- **Dimensions and Types**
  ⇒ txt, doc, ascii, csv, nc, hdf5, grib
- **Data-Websites**
  ⇒ knmi etc.
  ⇒ earthdata Nasa

2nd-hour of Class :

DATA DOWNLOAD

- **VPN, ssh**
- **http, ftp**
- **wget, curl**
- **Practice :** Filezilla, transfer file (sftp://ssh.itu.edu.tr)
- **Practice :** Download the data with ftp or wget

3rd-hour of Class :

NCL (or Latex)

- **Scientific Programming Language**
- **Analysis and Visualization**
- **nco, cdo**
- **Practice :** Check and plot the data file, we've downloaded

Reminder : To download Anaconda and Jupyter; BOOK – Beginning programming with Python, Chapter 4, Writing your first application, obtaing your copy of Anaconda.
: To download and Installation R and R Studio; BOOK – The R book Ch1.2, or Learning R Ch1 or R for Dummies, Appendix A
: R Introduction - http://www.r-tutor.com/r-introduction

Next Week

- TOPIC : Introduction to R – Getting started
- HOMEWORK : R and R Studio download, setup, create a new project and script
  : Datacamp – Introduction to R
- QUIZ : R - general information, operators, basic codes

4th Week — Introduction to R — (11 Oct)

2.QUIZ : R – general information, operators, basic codes

Goal(s) : Terminal and R Studio, intro to language and programming in R

3.HOMEWORK : Datacamp – Intro to R course

1st-hour of Class :

R – Getting Started

- **What is R ?**
- **Fields of usage**
- **Installing R from CRAN**
  - ⇒ R Studio (IDE for R)
- **Function and Packages**
  - ⇒ dplyr
  - ⇒ ggplot2

2nd-hour of Class :

Preview of R Course

- **Some Important R Data Structures**
  - ⇒ Vectors, Matrices, Arrays, Strings, Lists, Data Frame
- **Inspecting Variables and Workspace**
- **A Scientific Calculator**
- **R Programming Structures**
  - ⇒ Conditional Statement and Loops
- **Read and Write File**
- **Statistics, Porbability and Visualization**

3rd-hour of Class :

Introduction to R

- **R for Basic Math**
  - ⇒ Arithmetic
  - ⇒ Logarithms and Exponentials
- **Assigning Objects**
  - ⇒ Attributes

Reminder : Class and Different Types; BOOK – Hands on Programming, Learning R
Vectors; BOOK – The Book of R, Learning R

Next Week

- TOPIC : R Language – Class and Types of Variables in R
- HOMEWORK : Udemy – Introduction to R, Part 1, 2 and 3 (section 14 to 19)
- QUIZ : R – Data types, Objects, Vectors

5th Week — R, The Language – Part 1 — (18 Oct)

3.QUIZ : R – Data types, Objects, Vectors

Goal(s) : Learn differents types of values and data type:Vectors

4.HOMEWORK : Udemy – Introduction to R, Part 1, 2 and 3 (section 14 to 19)

1st-hour of Class :

Class - Different Types

- **Atomic and Recursive Variables**
- **Numeric Values**
  ⇒ Doubles, Integers, Complex and Raw
- **Non-Numeric Values**
  ⇒ Characters - Strings and Logicals
- **Special Values**
  ⇒ Infinity, Nan, na and NULL

2nd-hour of Class :

Class - Different Types

- **Dates and Times**
- **Factors**
- **Coercion**

3rd-hour of Class :

Vectors

- **Creating a Vector**
- **Sequences, Recycling, Repetition and Sorting**
- **Lengths and Names**
- **Indexing Vectors**

Reminder : Matrices and Arrays; BOOK – The Book of R,
Strings and Factors; BOOK – Learning R
String Manipulation; BOOK –The Art of R Programming

Next Week

- TOPIC : Matrices, Arrays, String and Factors
- HOMEWORK : edX – Introduction to R for Data Science, Part 2 and 3
  : Udemy – Introduction to R, Part 3 (section 20-21)
- QUIZ : R – Data Types : Matrices, Arrays, String and Factors

6th Week — R, The Language – Part 2 — (25 Oct)

4.QUIZ : R – Data Types : Matrices, Arrays, String and Factors

Goal(s) : Creating matrice and array, sitring manipulation

5.HOMEWORK : Udemy and edX – Vectors, Matrices and Arrays

1st-hour of Class :

Matrices and Arrays

- **Creating Arrays and Matrices**
- **Rows, Columns, Dimensions and Names**
- **Indexing Arrays**
- **Combining Matrices**
- **Array Arithmetic**

2nd-hour of Class :

String

- **Constructing and Printing Strings**
- **Extracting and Splitting Substrings**
- **String Manipulation**

3rd-hour of Class :

Factor

- **Creating Factors**
- **Converting Continuous Variables – Categorical**
- **Combining Factors**

Reminder : List and Data Frame; BOOK – Learning R

Next Week

- TOPIC : Data Types : List and Data Frame
- HOMEWORK : Udemy – Introduction to R, Part 3 (section 22-25)
  : edX – Introduction to R for Data Science, Part 5 and 6
- QUIZ : R – List and Data Frame

7th Week — R, The Language – Part 3 — (1 Nov)

5.QUIZ : R – List and Data Frame

Goal(s) : Creating list and data frame type, and indexing

6.HOMEWORK : Udemy and edX – List and Data Frame

1st-hour of Class :

List

- **Creating Lists**
- **List Dimensions and Arithmetic**
- **Indexing Lists**
- **Converting Between Vectors and Lists**
- **Combining Lists**
- **Pairlists**

2nd-hour of Class :

Data Frames

- **Creating Data Frames**
- **Indexing Data Frames**
- **Basic Data Frame Manipulation**

3rd-hour of Class :

R – Mid Term Project

- **Explanation of the Project**
  - ⇒ Print variables and dimensions
  - ⇒ Choose a parameter
  - ⇒ Manipulating, Indexing and Filtering
  - ⇒ Use dplyr Package
  - ⇒ Save and mail the script

Next Week

- TOPIC : NO CLASS

8th Week — ITU Fall-Term Break — (8 Nov)

No Class

Reminder : Calling Function, Conditional Statements; BOOK – The Book of R.
: Control Structures Loops in R;
https://www.r-bloggers.com/control-structures-loops-in-r/

Next Week

- **TOPIC** : R Programming, Conditional Statements, Control Flow Mechanism
- **TERM PROJECT** : R – Script

9th Week — R Programming – Part 1 — (15 Nov)

TERM PROJECT : R – Script, Data Types

Goal(s) : Understand the logic of programmind with if statements

1st-hour of Class :

Calling Functions

- **Scoping**
  - ⇒ Environments
  - ⇒ Search Path
  - ⇒ Reserved and Protected Names
- **Argument Matching**

2nd-hour of Class :

Conditional Statements

- **if Statements**
- **Stand-Alone Statement**
- **else Statements**
- **else if Statement**

3rd-hour of Class :

Conditional Statements

- **Nesting and Stacking Statements**
- **The switch Function**
- **Practice, exercise**

Reminder : Loops, BOOK – Learning R, The Book of R
: A Tutorial on Loops in R - Usage and Alternatives – LINK (Datacamp)
: For Loops in R, Tutorial;
https://www.datacamp.com/community/tutorials/for-loops-r

Next Week

- **TOPIC** : R Programming – Loops
- **HOMEWORK** : Udemy – Introduction to R Chapter 6
- **QUIZ** : R – if and for

10th Week — R Programming – Part 2 — (22 Nov)

6.QUIZ : R – if and for

Goal(s) : Understand the logic of programmind with for cycle

7.HOMEWORK : Udemy – condition and loop

1st-hour of Class :

Loops

- **while Loops**
- **for Loops**
- **apply**
  - ⇒ tapply
  - ⇒ lapply
  - ⇒ sapply

2nd-hour of Class :

Other Control Flow Mechanism

- **repeat Loops**
- **break and next**

3rd-hour of Class :

Condition and Loop

- **Nested Practice, excersice**

Reminder : Read and plot data, BOOK – The book of R, Learning R

Next Week

- TOPIC : Data import and plot
- HOMEWORK : Datacamp – Importing Data in R, Part 1
  : Udemy – Introduction to R Chapter 4
  : Datacamp – Data visualization in R
- QUIZ : R – reading and plotting the file

11th Week — R, Data Import and Plot — (29 Nov)

7.QUIZ : R – reading and plotting the file

Goal(s) : Learn open, read and plot the file in R

8.HOMEWORK : Datacamp and Udemy courses, read and plot data

1st-hour of Class :

Reading and Writing Files

- **R-Ready Data Sets**
- **Reading in External Data Files**
  - ⇒ The Table Format
  - ⇒ Spreadsheet Workbooks
  - ⇒ Web-Based Files
  - ⇒ Other File Formats
- **Writing Out Data Files**
  - ⇒ Data Sets

2nd-hour of Class :

Basic Plotting - Graphics

- **Using plot with Coordinate Vectors**
- **Graphical Parameters**
  - ⇒ Automatic Plot Types
  - ⇒ Title and Axis Labels
  - ⇒ Color
  - ⇒ Line and Point Appearances
  - ⇒ Plotting Region Limits

3rd-hour of Class :

Basic Plotting - Graphics

- **Adding Points, Lines, and Text to an Existing Plot**
- **The ggplot2 Package**
  - ⇒ A Quick Plot with qplot
  - ⇒ Setting Appearance Constants with Geoms
  - ⇒ Aesthetic Mapping with Geoms

Reminder : R Statistics, BOOK – The book of R
: Statistic and Probability – khanacademy
: Elementary Statistics with R - http://www.r-tutor.com/elementary-statistics

Next Week

- **TOPIC** : R Statistics
- **HOMEWORK** : Datacamp – Correlation and Regression
- **QUIZ** : R – sum, mean and hist

12th Week — R, Statistics — (6 Dec)

8.QUIZ : R – sum, mean and hist

Goal(s) : Learn elementary statistics and basic data visualization

9.HOMEWORK : Datacamp - Correlation and Regression

1st-hour of Class : **Elementary Statistics**

- **Describing Raw Data**
  - ⇒ Numeric Variables
  - ⇒ Categorical Variables
- **Summary Statistics**
  - ⇒ Mean, Median, Mode, Variance and St. Dev.
  - ⇒ Counts, Percentages, and Proportions
  - ⇒ Quantiles, Percentiles, and the Five-Number Summary
  - ⇒ Covariance and Correlation
  - ⇒ Outliers

2nd-hour of Class : **Basic Data Visualizaion**

- **Barplots and Pie Charts**
  - ⇒ Building a Barplot
  - ⇒ A Quick Pie Chart
- **Histograms**
- **Box-and-Whisker Plots**
  - ⇒ Stand-Alone Boxplots
  - ⇒ Side-by-Side Boxplots
- **Scatterplots**
  - ⇒ Single Plot
  - ⇒ Matrix of Plots

3rd-hour of Class : **Statistics and Data Visualization**

- **Practice**

Reminder : Probability ib R, BOOK – The book of R
: Statistic and Probability – khanacademy.org

Next Week

- TOPIC : R – Probability
- HOMEWORK : Udemy – Introduction to R, Chapter 7, Statistics Section 49 to 52
- QUIZ : R – Distributions

13th Week — R, Probability — (13 Dec)

9.QUIZ : R – Distributions

Goal(s) : Learn elementary probability and distributions

10.HOMEWORK : Udemy course, statistics and probability

1st-hour of Class :

Probability

- **What is Ptobability ?**
  - ⇒ Events and Probability
  - ⇒ Conditional Probability
  - ⇒ Intersection
  - ⇒ Union
  - ⇒ Complement

2nd-hour of Class :

Probability

- **Random Variables and Probability Distributions**
  - ⇒ Realizations
  - ⇒ Discrete Random Variables
  - ⇒ Continuous Random Variables
  - ⇒ Shape, Skew, and Modality

3rd-hour of Class :

Probability

- **Common Probability Distributions**
  - ⇒ Mass Functions : Bernouilli, Binomial, Poisson
  - ⇒ Density Functions : Uniform, Normal, Exponential

Reminder : dplyr and ggplot2 packages; BOOK – R for Data Science
Introduction to Data Science with R - Data Analysis Part 1;
https://www.youtube.com/watch?v=32o0DnuRjfg

Next Week

- TOPIC : R – Advance, dplyr and ggplot2 Packages
- HOMEWORK : Datacamp – Data Manipulation with dplyr in R
  : Datacamp – Data visualization with ggplot2
- QUIZ : R – dplyr and ggplot2 Packages

14th Week — R, Advance — (20 Dec)

10.QUIZ : R – dplyr and ggplot2 Packages

Goal(s) : Meet advanced packages in R

11.HOMEWORK : Datacamp courses

1st-hour of Class : **Data Analysis**

- **readr**
- **dplyr**
- **tidyr**
- **Practice**

2nd-hour of Class : **Data Analysis**

- **ggplot2**
- **lattice**
- **practice**

3rd-hour of Class : **Data analysis**

- **Final Term Project**

Reminder : Remember that – read-write file, indexing, if, for, plotting, dplyr, ggplot2
To create and write your own function package go to datacamp

Next Week

- TOPIC : R – Final Project
- HOMEWORK : Prepare-Check your input data

15th Week — R – Final Project — (27 Dec)

Goal(s) : Use all skill about R language and programming

11.HOMEWORK : Prepare Input Data

FINAL PROJECT : R – Final Project Workshop

Workshop :

R – Final Project

- **Flow Chart**
  - ⇒ Prepare your input data
    - Txt, csv, nc
  - ⇒ Create a new R project and a new R script
  - ⇒ Install Packages
  - ⇒ Set directory and go to folder
  - ⇒ Open folder and print list of files
  - ⇒ Open file, read and print variables and dimensions
  - ⇒ Convert data types
    - Data frame to list
    - List to vector
  - ⇒ Aplly conditions and loops
    - Indexing
    - Manipulating
    - Indexing
  - ⇒ Data analysis
    - Statistics; plot, summary, histogram
    - Probability distribution
    - Time series
  - ⇒ Save the script and mail me

END OF THE COURSE