

Basic R programming

11-12 Jan 2021

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Learning outline:

Date-time	Outline
Day 1:	
09:00 – 09:10	Opening
09:10 – 10:30	R as calculator (R and RStudio)
10:30 – 10:45	Break
10:45 – 12:00	Data explorations and ggplot
12:00 – 13:00	Lunch
13:00 – 14:30	Descriptive statistics and graphic
14:30 – 14:45	Break
15:00 – 16:00	Hand-on exercise (1)
16:00 – 16:30	Day 1 Wrap-up

Learning outline:

Date-time	Outline
Day 2:	
09:00 – 09:10	Recap
09:10 – 10:30	Probability and Hypothesis testing
10:30 – 10:45	Break
10:45 – 12:00	Categorical data analysis
12:00 – 13:00	Lunch
13:00 – 14:30	Continuous data analysis (linear modelling)
14:30 – 14:45	Break
15:00 – 16:00	Hand-on exercise (2)
16:00 – 16:30	Day 2 Wrap-up

Objectives

- Learn the Basic R and statistics.
- Basic R commands and scripting
- Basic Statistics: central tendency, spread measurement, sampling, and statistical inference.
- Basic graphic grammar and ggplot library

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Lecture 1 (09:10-10:30): R as calculator (R and RStudio)

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R & RStudio demo

Variable Types

- character – Strings
- integer – Integers
- numeric – Integers + Fractions
- factor – Categorical variable where each level is a category
- logical – Boolean
- complex – Complex numbers

```
>> class(a)
```

```
>> a <- as.character(a)
```

```
>> a
```

Data types

- vector – A collection of elements of same class
- matrix – All columns must uniformly contain only one variable type.
- data.frame – The columns can contain different classes.
- list – Can hold objects of different classes and lengths

Question before coffee break

1. Find the summation of number from 1596 to 20360
2. Find the mean, median, sd, variance of all number from 89 to 560
3. How many number between 200 to 80,000 that can be divided by 17
4. Find the mean, median, sd, variance of the vector in (3)

