

# QTM 150

## Week 3 – R Basics II

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# Recap

- Last class you learned a lot!
- Difference between R and R Studio
- Calculations with R
- Variables and vectors
- R syntax
- **Great job!!**

# Today's Agenda

- Sequences and Repetitions.
- Vectors.
- Functions and arguments.
- Matrices.
- R Studio shortcuts.

# Sequences and Repetitions

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# Sequences and Repetitions

- We can also create vectors with sequences and repetitions.
- Sequences can be built with `:` or the function `seq`.
- Repetitions can be built with the function `rep`.
- **Your turn:** Compute the average of the following numbers: 1, 2, 3, 4, 5, 6. Save them in an object called `my_numbers`, but create them with sequences. Then, use the function `mean()`.

# Vectors

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# Vectors

- Creating vectors.
- Length of vectors.
- Extract element from a vector:
  - Displaying specific elements.
  - Extract multiple elements.
  - Extract elements in sequence.
  - Not displaying given elements.
- **Your turn:** From the following vector: `y ← rnorm(10)`, (i) select the 3rd element; (ii) now the 4th until the 8th; (iii) all but the 9th.

# Functions and Arguments

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# Functions and Arguments

- R has built in functions that we can use to do stats. Syntax:

```
r_function(arg1, arg2, ... )
```

- Let's try a few:

- mean()
- median()
- sd()
- max()
- min()
- summary()

- **Your turn:** Try the functions in the following vector: `m ←`

```
rmnorm(1000).
```

# Matrices

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# Matrices

- Creating matrix.
- Dimension of matrix.
- Extracting and changing elements:
  - Displaying columns.
  - Displaying rows.
  - Extracting one element.
  - Extract multiple elements.
  - Extract elements in sequence.
- **Your turn:** From the following vector: `m ← matrix(rnorm(9), nrow = 3)`, (i) select the 3rd row; (ii) select the second column; (iii) all but the second row.

# R Scripts

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# R Scripts

- What are R Scripts?
- How to create and save them.
- Running commands.
- Writing comments.
- **Your turn:** Create one script called `my_script.R`. Make one comment, create one vector, and take the mean of the vector.

Questions?

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Have a great weekend!

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