

Intro to Social Science Data Analysis

Seminar 1: Introduction to R and RStudio

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- 1 What is the seminar for?
- 2 Getting Started with RStudio
- 3 Getting Started with R

Seminar Purpose (1)

- ▶ This course is about learning skills that will help you **gather**, **analyse**, and **present** social science data.
- ▶ The best way to develop these skills is by **using** them.
- ▶ The seminar is an opportunity for you to **practice** using these tools. Here you can:
 - ▶ Ask me questions,
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Note: There is **rarely only one correct answer**.

I want you to **creatively** use the tools and resources available to you.

I do not want you to just copy a list of instructions.

Open Rstudio



Look around the main Panel.

- ▶ **Console:** Where you can enter R code.
- ▶ **Workspace/History:** Where you can see your objects and the history of commands.
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Create a new **source code** file:

- ▶ Click: **File** → **New** → **R Script**
- ▶ Usually write your R code here and **save your source files to Dropbox.**
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→ Compile Notebook...
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Commenting

Hint: You can make your code easier to read by **regularly commenting** on it.

Use the # (hash). For example,

```
# This is a comment
```

Objects

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 - ▶ The rules for writing the R language is called its **syntax**.
- ▶ R is an *object-oriented language*.
- ▶ **Objects** are like R's nouns: they are **things**.

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The Basics: Objects (2)

For example:

```
# Add 2 + 2
```

```
2 + 2
```

```
[1] 4
```

```
# Put the answer of 2 + 2 in an object called Answer
```

```
Answer <- 2 + 2
```

Assignemt

The `<-` is the **assignment operator** it assigns something to an object.

Tasks 1

Create **5** different objects. Explore their properties.

What can you put into an object?

What could you not put into an object?

Object Classes

All objects have a **class**.

Some are **numeric**, some are **characters**, some are **logical** (TRUE or FALSE)

Use the `class` command to find out what an object's class is. For example:

```
class(Answer)

## [1] "numeric"
```

Basic Object Types

- ▶ The main type of object we will use in this class is called a **dataframe**.
 - ▶ We will cover dataframes in detail next class.
- ▶ Today, let's look at some more basic R objects:
 - ▶ Vectors
 - ▶ Matrices
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Vectors

Vectors are objects with multiple numbers *or* character strings in a particular order.

```
# A vector of a sequence of numbers
```

```
Sequence <- 1:10
```

```
Sequence
```

```
## [1] 1 2 3 4 5 6 7 8 9 10
```

```
# Non-sequential numbers
```

```
NonSeq <- c(1, 30, 53)
```

```
NonSeq
```

```
## [1] 1 30 53
```

```
# A character string vector
```

```
CharVector <- c("Christopher", "John", "Gandrud")
```

```
CharVector
```

```
## [1] "Christopher" "John"          "Gandrud"
```

Commands & Functions

Commands and Functions tell R to **do something**.
Usually they do something to an object.

Commands, Functions, Arguments (2)

For example:

Lets create a set of 5 numbers: 1, 2, 3, 4, 5, 6:

```
Numbers <- c(1, 2, 3, 4, 5, 5)
```

Now lets take the mean (average) of these 5 numbers with the mean command

```
mean(Numbers)
```

```
[1] 3.333
```

Arguments

Arguments modify the command.

For example:

Find what arguments the `mean` command can take by typing a `?` before `mean`.

This gives us the **help file** for the `mean` command.

We can see that one argument is `trim` which rounds the answer.

To add the `trim` argument just use the `=` like this:

```
mean(Numbers, trim = 1)
```

```
[1] 3.5
```


Tasks 1

Find and use **2** other commands. Explore their properties.

Assign the output of these commands to new objects?