# Worksheet 1 - welcome to R

Welcome to the second part of the Bioinformatics class!

As you know, the first part of the class focused on Perl, the command line and emacs. This second part of the class will focus on R. It is taught by me, Daniel Fulop. We'll do R for 5 weeks and after that, you have another 3.5 weeks to work on your projects.

In this class, you will be mostly working by yourself or with a partner. You get worksheets and work at your own pace. Worksheets are due 1 week after they’re assigned in class. If you turn them in late, you will be deducted 10% for each day late. I am working on a means of digital submission of worksheets, probably through iLearn.

## Task 1 - Be a class ambassador and visit my office hours.

Goal: Each day of the course (except day 1), I would like to know how you are doing. I also would like to get to know everyone. Each of you should therefore sign up to come to my office hours once during the coming 5 weeks. My office hours are Tuesday and Thursday 1:30-2:30. Use this sign up spreadsheet: https://goo.gl/4rw9i6

When you come to my office hours (probably with a colleague), be prepared to tell me at least one thing you found interesting in the last class and one thing you found confusing, hard or boring. *Office hours will be held in this computer lab*.

Did you sign up for an office hour meeting?

Yes / No

Name:

Date:

# Worksheet 2 - R inspiration

R is a software environment and programming language for statistics that is used by many people, among them many biologists. The goal of this worksheet is for you to find inspiration to learn R by reading about how other people use R and how these people got started with R.

## Task 1 - read four stories from <https://whyiuser.wordpress.com/>

Go to the website, pick a story that looks like it could be interesting and answer the following questions. Repeat four times.

Story #1:

1. What is the R user's name?

2. What topic do they work on?

3. Which answer did you find most surprising / what did you learn from reading their story?

Story #2:

1. What is the R user's name?

2. What topic do they work on?

3. Which answer did you find most surprising / what did you learn from reading their story?

Story #3:

1. What is the R user's name?

2. What topic do they work on?

3. Which answer did you find most surprising / what did you learn from reading their story?

Story #4:

1. What is the R user's name?

2. What topic do they work on?

3. Which answer did you find most surprising / what did you learn from reading their story?

## Task 2 - summarize

After reading several stories about people who use R, is there anything problem that you think R can help you to solve? Is there anything particular that caught your interest?

Is there anything that didn’t make sense to you or was unexpected?

## Task 3 - share with your neighbor

Compare notes with at least one neighbor. Why did you neighbor choose the stories he or she read? Did you pick up something different? Did the stories change your ideas about R?

## Finished!

Name:

Date:

# Worksheet 3 - Do chapter 1 of online R tutorial <https://www.codeschool.com/courses/try-r>

You need to create a login for Codeschool, then you get started with the R class.

For this worksheet, you'll do chapter 1.

1. Do you see any differences with Perl? Write down at least 3 differences

2. How would you ask R to multiply 7 and 8? Or to divide 7 by 8?

3. Which of the following expressions would return a logical (or boolean) value?

A. 3 < 4

B. 3 == 4

C. x <- 4

D. 4 -> x

4. Can you assign a logical value to a variable called "y"? How would you assign FALSE to a variable called "y"?

5. Name three functions you learned in the tutorial. What do they do?

6. What is the function you use to list all the files in your current directory?

7. What is the function you use to run all the code in a file called "file.R"?

8. Do you have any questions about the tutorial?

## Finished!

Name:

Date:

# Worksheet 4 - Do chapter 2 of online R tutorial <http://tryr.codeschool.com/>

Login to Codeschool and do chapter 2.

1. Define the following data structures? What do you find written in them?

Boolean

Numeric

String

1. What happens if you try to combine in a vector a Boolean, a numeric and a string?
2. What would be the result of this piece of code: seq(1, 2, 0.1)

Type it in to RStudio!

1. A vector can have names. How do you call an element of a vector by its name
2. Suppose you'd run this code to make a vector:

sentence <- c("I", "am", "not", "learning", "R", "!", "!") and then you'd run this code: sentence[c(1,2,4,5)]

What would be the output?

Does R start counting at 0 or at 1? Is this different from Perl?

1. In chapter 2 of the online R tutorial on Codeschool, you'll learn how to make two kinds of plots. What are they? What functions do you use to make them? In each case, what goes on the x-axis and what on the y-axis?

## Finished!

Name:

Date: