

## Tutorial 11 - Programming and custom functions in R

# Cheat Sheets

We know there are a lot of functions and syntax with R.

- ▶ Don't forget the handouts we gave you about data structures in R and reading/writing files. This describes a lot of functions.
- ▶ Don't forget about the general R cheat sheet from last week
- ▶ Don't forget that Google is the ultimate, interactive cheat sheet

*The cheatsheets we mention here are linked from today's tutorial page*

# Y'all are doing great!

We've noticed that many of you will be very worried about your code when you come to office hours or ask for help in class, but then have code that is 85% or more of the way to the right answer. This is a very good sign. You will always feel a bit uncertain about your coding skills because there is always more you can know.

- ▶ Be confident in your growing coding skills!
- ▶ Be adventurous when coding! After all, you can't break anything.
- ▶ Be wise and use Google (and your instructors) for help when you are unsure!

# Learning to problem solve and languages

As we said at the beginning of the semester, this is like a philosophy and language class all in one. You are learning a new way to think and a new language (actually two)!

- ▶ The recent challenges are more realistic and therefore include an important step of conceptualizing or decomposing the problem
- ▶ Seems like most of you are getting pretty good at R and decomposing problems, but both of these skills require a lot of practice
- ▶ It is definitely ok to ask for help on decomposing the problem, and don't let struggles with this convince you that you aren't learning R

## Reminder

**Office hours are available for y'all to get help with any aspect of class**

You can find links to office hours in the forums section of the class Sakai page!

## Challenge 1

Create a function that returns rows from `wages.csv` with a specified gender, years experience, and years of education. If no rows meet the criteria provided by the arguments, the function should return nothing and print a message that no individuals in the dataset meet the specified criteria.

## Challenge 2

Write a function to convert between miles and kilometers. The function should take a vector of any length as the first argument and return a vector of the same length. A second argument should allow users to specify “miles2km” or “km2miles” and the function should do the appropriate conversion. 1 mile = 1.60934 km.

## Challenge 3

Create a function that creates a comma separated value (CSV) text file with a randomly selected number of lines between 1 and 20 with a single number on each row, but the sum of numbers in the file must be less than 100.