



# Introduction To Programming in R (1)

R Foundations for Life Scientists

Marcin Kierczak

# Computer program

- flow of data
- from one function to another
- each function does something to the data

## How?

A **programming language** is a formal computer language or constructed language designed to communicate instructions to a machine, particularly a computer. Programming languages can be used to create programs to control the behavior of a machine or to express algorithms.

[Wikipedia](#)

## Three things to think about

- what *types* of data can I process?
- how do I *write* what I want?
- when does it *mean* anything?

# Three components of a language

- what *types* of data can I process — *type system*
  - int — 1 2 5 9
  - double — 1.23 -5.74
  - char — a b test 7 9
- how do I *write* what I want — *syntax* defined by a language *grammar*

2 \* 1 + 1 vs. (+ (\* 2 1) 1)

- when does it *mean* anything — *semantics*
  - *Colorful yellow train sleeps on a crazy wave.* — has no generally accepted meaning
  - *There is \$500 on his empty bank account.* — internal contradiction

Thank you. Questions?

Graphics from  freepik.com

Created: 16-Sep-2021 • Roy Francis • SciLifeLab • NBIS

