



# 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: 09-Aug-2023 • Roy Francis • SciLifeLab • NBIS

