

# C: an introduction

Topics covered

## Course documents

- [https://franklbvp.github.io/c\\_intro/](https://franklbvp.github.io/c_intro/)

# Aims of the Course

- Introduce basics of C programming from scratch
  - Console-based, no gui
- Get enough understanding on the basics of the C programming language
  - Write basic code yourself.
  - Be able to read and understand code from fellow researchers.
  - Take yourself up to a higher level of expertise.

# Topics

- History.
- Basic Workflow.
- Programming Style Guide.
- Debugger.
- Operators, operands and their precedence.
- Different number types in C (Integers and Floating Point).
- Conversions and casts.
- Expressions.

# Topics

- Programming statements:
  - Choice: `if`, `switch`
  - Loops: `while`, `do-while`, `for`
- Functions.
- Scope.
- Preprocessor.
- Pointers.

# Topics

- Arrays.
- Characters, strings.
- Structures.
- Pointers / more.
- Memory allocation.
- Reading and writing files.

# How to learn a programming language

- Experiment on the computer.
- Find some good problems to work on.
- Look at others' code.
- Use the language routinely.

(<https://www.biostat.wisc.edu/~kbroman/teaching/>)

# Programming process

1. Specify the task
2. Discover an algorithm for its solution
3. Code the algorithm (in C)
4. Test the code

(Kelley & Pohl: C by dissection)

# Thank you for the information

- Slides based on  
B. Kernighan & D. Ritchie (1988)  
*The C Programming Language (ANSI C)*  
Prentice Hall Software Series
- *Modern C Quick Syntax Reference*, Mikael Olsson, Apress 2019
- *Computer Programming in C for Beginners*, Avelino J. Gonzalez, Springer, 2020
- <https://gribblelab.org/teaching/CBootCamp/>
- <https://newton.ex.ac.uk/teaching/resources/jmr/>
- <https://www.cse.msu.edu/~cse251/>
- <https://www.csee.umbc.edu/~tinoosh/cmpe311/>
- <https://www.cs.yale.edu/homes/aspnes/classes/223/notes.html>
- <https://github.com/angrave/SystemProgramming/wiki>
- <https://www.zentut.com/c-tutorial/introduction-to-c-language/>
- <https://overiq.com/c-programming/101/intro-to-c-programming/>
- <https://github.com/Keith-S-Thompson/how-to-c-response/blob/master/README.md>