

# C++ Training - InFoMM

Martin Robinson

Dec 2017

- Course Git repository at <https://github.com/martinjrobinson/cpp-teaching-2017.git>
- Contains lecture notes, exercises and source code examples
- Combination of lectures and practical sessions
- practical exercises (practical\*.pdf) test material covered in the lectures
- for those with prior C++ experience, here are a few additional options:
  - see mini-projects project-\* for some small projects.
  - the advanced question 7 in practical sheet 2 is good if you are interested in single-core optimization.
  - C++ has changed a lot in the last few years. Have a look at and try out some new features, e.g. Parallel STL, constexpr, structured bindings, variadic templates (with fold expressions!), new filesystem library. Or try out some future features, e.g. Concepts, Ranges, Modules.
  - Something else...?

This training course covers the following topics:

- ① basic types, `std::array`, flow control, input/output
- ② pointers, references, functions, templates, `std::vector`, raw loops
- ③ classes and object-oriented programming
- ④ More templates and the Standard Template Library, Exceptions

Timetable: One lecture each in the morning and afternoon, rest of the time devoted to practical exercises.

# Acknowledgements

Material for this course adapted from:

- Pitt–Francis & Whiteley: Guide to Scientific Computing in C++
- C++ for Scientific Computing course by Joe Pitt–Francis  
<http://www.cs.ox.ac.uk/people/joe.pitt-francis/C++ScientificComputing/>

