C++ Training - InFoMM

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Administration

- Course Git repository at
  https://github.com/martinjrobins/cpp-teaching-2018.git
- Contains lecture notes, exercises and source code examples
- Combination of lectures and practical sessions. Practical exercises (`practical*.pdf`) give you practice on the material covered in the lectures
- those with prior C++ experience, here are a few suggestions:
  - see mini-projects `project-*` for some additional exercises.
  - the advanced question 7 in practical sheet 2 is good if you are interested in single-core optimization (matrix-matrix multiply).
  - 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!), 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, flow control, `std::array`, 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

This course gives you a practical toolbox of C++ programming up to C++11. *This is a small part of C++ as a whole!*.

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/