Medical & Health Physics

Instructor

Research Technologies and Methods (MEDP-7098)

Course Objectives

- To teach basic research methods of relevance to thesis and dissertation research projects conducted by graduate students.
- To teach graduate students how to prepare a written research proposal suitable for an MS or PhD research project and general examination.

Session taught Introduction to Linux, Introduction to Python, Introduction to C++, Introduction to high performance computing clusters, and Introduction to high performance programming approaches.

- Taught @LSU: Summer 2022
- Slides

Mathematics

Instructor

Parallel Computations Mathematics (M4997)

This course will focus on the parallel implementation of computational mathematics problems using modern accelerated C++. The aim of this course is to learn how to quickly write useful efficient C++ programs. The students will not learn low-level C/C++ instead they will learn howto use high-level data structures, iterators, generic strings, and streams (including interactive and file I/O) of the C++ ISO Standard library. In addition, highly-optimized linear algebra libraries are introduced since the course teaches to solve problems, instead of explaining low-level C++ and computer science algorithms, like sorting algorithms, which are provided in the C++ standard library.

- Taught @LSU: Fall 2019 and Fall 2020
- Slides, Exercises, and Course notes.
- Reference: [1]

Teaching assistant

- Einführung in die Numerische Mathematik (Introduction to numerical mathematics), University of Bonn, 2015
- Algorithmische Mathematik (Mathematical algorithms), University of Bonn, 2013/2014
- Wissenschaftliches Rechnen 2 (Scientific Computing 2), University of Bonn, 2013

Computer science

Teaching assistant

- Computational Fluid Mechanics, University of Stuttgart, 2012

References

[1] Patrick Diehl and Steven R. Brandt. Interactive C++ code development using C++Explorer and GitHub classroom for educational purposes. *Concurrency and Computation: Practice and Experience*, 2022.