MPhil in Scientific Computing

Course Directors: Dr N. Nikiforakis (email: nn10005@cam.ac.uk)
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Course website: http://www.csc.cam.ac.uk/academic/MPhil%20SciComp

All lectures will take place in the Rayleigh Seminar Room in the Maxwell Building, except on 9th October, when they will be in the Rutherford Seminar Room B in the Rutherford Building.

PROFESSOR E. ARTACHO

Introduction to Quantum Mechanics
6 lectures (2 hours each – 6 lectures & 6 practicals) - 12
TuTh 9-11, starting 5th October for 6 lectures

PROFESSOR E. ARTACHO

Electronic Structure (Theory of Condensed Matter)
10 hours lectures + 4 2-hour practicals: Total 18 hours
Lectures: TuTh 10-11 starting 26th October
Practicals: TuTh 3-5 starting 16th November

DR P.M. BLAKELY

GPUs for Scientific Computing
12 lectures (12 hours total of lectures & practicals)
MWF 3-5, starting 17th November.

DR P.M. BLAKELY

Scientific Programming in C++
12 lectures (2 hours each – 12 lectures & 12 practicals) – Total 24 hours
MWF 3-5, starting 6th October.

DR P.M. BLAKELY

Introduction to Linux
5 lectures
MWF 9-10, starting 6th October.
DR A. FAUL
NA Fundamentals, Non-linear Systems & Interpolation
16 lectures
TuTh 11-12 (all term)

DR A. FAUL
Numerical Integration and ODEs.
16 lectures
W 11-12, F 10-11 all term

DR A. FAUL
Linear Systems.
16 lectures
TuTh, 12-1, starting 6th October

DR A. FAUL
Numerical Differentiation & PDEs
16 lectures
MW 10-11 all term

DR L. MICHAEL
Numerical Solution of Hyperbolic Partial Differential Equations
12 lectures
MTuWThF 9-10 starting 16th November (10 lectures)
Plus: Friday 17th November and Monday 20th November, 12-1

DR M. RUTTER
Computational Hardware
7 lectures
2017: MF 2-3 starting 6th October

N. MACLAREN
Software Design
4 lectures
TuTh 9-10, starting 2nd November
**DR M. RUTTER**

Message Passing Interface (MPI)

9 lectures and 6 practicals: Total 15 hours

TuTh 3-5, starting 19th October, for 8 lectures

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**N. MACLAREN**

OpenMP

6 lectures (2 hours each – 6 lectures & 6 practicals) – Total 12 hours

**2016:** MWF 3-5, starting 3rd November

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**PROF. J. ELLIOTT**

Atomistic Modelling of Materials

12 lectures plus 6 hours practicals – Total 18 hours

MWF 9-10, starting 20th October, for 12 lectures.

Practicals: M 1-3, starting 13th October, for 3 sessions

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**DR C. DORAN**

Geometric Algebra

8 lectures

MW 12-1, starting 9th October, missing 25th October, so finishing on Monday 6th November

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**DR K. BENKRID**

Programming for power-efficient computing

8 lectures

TuF 2-3, starting 3rd November

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**DR A. FAUL, G. PILIKOS**

Machine Learning

16 lectures

MF 11-12, starting 6th October