PHYS/MDPH407 - S1 Research Tools Timetable

Term 1, 2023, PHYS407 and MDPH407						
Week	**Topic**	**Date**	**Time**	**room**	**Notes**	**Lecturer**
1	**Course introduction and overview of 480 projects**	Tuesday, 21st Feb	2-2:30	ER464	Phys407 and MDPH407	Chris Gordon
2	**Introduction to department computer facilities**	Tuesday, 28th Feb	1-3	ER464	Phys407 and MDPH407	Orlon Petterson
3	**Using Python for Data Analysis**	Tuesday, 7th March	1-3	ER464	Phys407 and MDPH407	Michael Albrow
4	**Using Python for Data Analysis**	Tuesday, 14th March	1-3	ER464	Phys407 and MDPH407	Michael Albrow
5	**Academic Presentations**	Tuesday 21st March	2-3	ER464	Phys407 and MDPH407	Jacqui Tither
6	**Academic Writing** Scientific writing Writing a thesis, paper, etc	Tuesday 28th March	2-3	ER464	Phys407 and MDPH407	Jacqui Tither
End of term 1						

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Term 2, 2023, PHYS407 and MDPH407						
7	**Introduction to typesetting with** **LATEX** • Getting started • Creating a simple document Creating a scientific document	Tuesday 25th April	1-3	ER464	Phys407 and MDPH407	Chris Gordon
8	**Contextual Statistics** Introduction to statistics for physicists.	Tuesday 2nd May	1-3	ER464	Phys407 and MDPH407	Gabor Erdelyi
9	**Contextual Statistics** Introduction to statistics for physicists.	Tuesday 9th May	1-3	ER464	Phys407 and MDPH407	Gabor Erdelyi
10	**Random numbers, distributions, elementary integration** •Generation and testing of random numbers. •Origin of common distributions that arise in physics: Gaussian, Poissonian, and Lorentzian. •Elementary Monte-Carlo integration.	Tuesday, 16th May	1-3	ER464	Background for Assignment 1, Phys407 and MDPH407	Mike Reid
11.	**Monte-Carlo Integration by Importance Sampling** • How importance sampling can give huge improvements in efficiency. • Generation of non-uniform distributions. • The Metropolis algorithm.	Tuesday 23rd May	1-3	ER464	Assignment P1, Phys407 and MDPH407	Mike Reid
12.	**Monte-Carlo Applications** • Background in Thermodynamics and Statistical Physics. • Metropolis algorithm in condensed-matter simulations. • Physics example: Ising Model. • Simulated annealing as a minimization technique: travelling salesmen and chip design.	Tuesday 30th May	1-3	ER464	Assignment P2, Phys407 and MDPH407	Mike Reid
End of term 2						