Course Title:	PYTHON PROGRAMMING AND QUANTUM PHYSICS
Instructor	Salvatore Lorenzo
N of hours	20
Description	Introduction to scientific computing using the increasingly popular programming language Python with its rich set of open source libraries.
Contents	• Introduction to Python: Installation, Anaconda3, IPython, JupiterLab, Spyder • Basics of Python programming (lists, tuples,data types,operators, if statements, functions, ...) • Integrals and derivatives • Ordinary differential equations • Manipulating numerical data with Numpy • Plotting with Matplotlib • Simulating quantum physics with QuTiP. • ▪ Lindblad Master equation solver ▪ Manipulating States and Operators ▪ Superoperators and Vectorized Operators ▪ Using Tensor Products and Partial Traces ▪ Superoperators and Tensor Manipulations • Time evolution and Quantum System Dynamics ▪ Lindblad Master equation solver ▪ Monte Carlo solver ▪ Time dependent Hamiltonians