C2QA Foundations of Quantum Information Science (QIS101) - Syllabus

Week #1

MON	06/12/23	10:00 AM	11:00 PM	Session 01 - Introducing Quantum Computing
		11:00 AM	**11:30 AM**	**Welcome - Andrew Houck, Director C2QA**
		1:00 PM	3:00 PM	Session 01 - Introducing Quantum Computing
		4:00 PM	6:00 PM	Session 02 - Installing Courseware

TUE	06/13/23	10:00 AM	12:00 PM	Session 03 - Introducing Python
		1:00 PM	3:00 PM	Session 03 - Introducing Python
		4:00 PM	6:00 PM	TA Time

WED	06/14/23	10:00 AM	12:00 PM	Session 04 - Experimental Mathematics
		1:00 PM	3:00 PM	Session 04 - Experimental Mathematics
		4:00 PM	6:00 PM	Session 04 - Experimental Mathematics

THU	06/15/23	10:00 AM	12:00 PM	Session 05 - Algorithmic Efficiency
		1:00 PM	3:00 PM	Session 05 - Algorithmic Efficiency
		4:00 PM	6:00 PM	Session 06 - Data Visualization

FRI	06/16/23	10:00 AM	12:00 PM	Session 06 - Data Visualization
		1:00 PM	**3:00 PM**	**Guest Lecturer - Michael Hatridge, U of Penn**
		4:00 PM	6:00 PM	Session 06 - Data Visualization

Week #2

MON	06/19/23	**No Classes**		**Juneteenth Federal Holiday**

TUE	06/20/23	10:00 AM	12:00 PM	Session 07 - Information Theory
		1:00 PM	3:00 PM	Session 07 - Information Theory
		4:00 PM	6:00 PM	Session 08 - Early Quantum Mechanics

WED	06/21/23	10:00 AM	12:00 PM	Session 08 - Early Quantum Mechanics
		1:00 PM	3:00 PM	Session 09 - Probability and Statistics
		4:00 PM	6:00 PM	TA Time

THU	06/22/23	10:00 AM	12:00 PM	Session 09 - Probability and Statistics
		1:00 PM	3:00 PM	Session 09 - Probability and Statistics
		4:00 PM	6:00 PM	Session 10 - Numerical Analysis

FRI	06/23/22	10:00 AM	12:00 PM	Session 10 - Numerical Analysis
		1:00 PM	3:00 PM	Session 10 - Numerical Analysis
		4:00 PM	6:00 PM	TA Time

Week #3

MON	06/26/22	10:00 AM	12:00 PM	Session 11 - Complex Algebra
		1:00 PM	3:00 PM	Session 11 - Complex Algebra
		4:00 PM	6:00 PM	Session 11 - Complex Algebra

TUE	06/27/22	10:00 AM	12:00 PM	Session 12 - Classical Wave Equations
IBM-HBCU		**1:00 PM**	**3:00 PM**	**Virtual Tours - CFN, CSI, NSLS-II, QUIST LAB**
		4:00 PM	6:00 PM	TA Time

WED	06/28/22	10:00 AM	12:00 PM	Session 12 - Classical Wave Equations
		1:00 PM	3:00 PM	Session 12 - Classical Wave Equations
		4:00 PM	6:00 PM	Session 13 - Fourier Analysis

THU	06/29/22	10:00 AM	12:00 PM	Session 13 - Fourier Analysis
		1:00 PM	3:00 PM	Session 13 - Fourier Analysis
		4:00 PM	6:00 PM	Session 13 - Fourier Analysis

FRI	06/30/23	10:00 AM	12:00 PM	Session 14 - Linear Algebra
		1:00 PM	3:00 PM	Session 14 - Linear Algebra
		4:00 PM	6:00 PM	TA Time

Week #4

MON	07/03/23	**No Classes**	**BNL Holiday**

TUE	07/04/23	**No Classes**	**July 4th Holiday**

WED	07/05/23	10:00 AM	12:00 PM	Session 14 - Linear Algebra
		1:00 PM	**3:00 PM**	**Guest Lecturer - Samuel Stein, PNNL**
		4:00 PM	6:00 PM	Session 14 - Linear Algebra

THU	07/06/23	10:00 AM	12:00 PM	Session 15 - Vector Algebra
		1:00 PM	3:00 PM	Session 15 - Vector Algebra
		4:00 PM	6:00 PM	Session 16 - Scientific Computing

FRI	07/07/23	10:00 AM	12:00 PM	Session 16 - Scientific Computing
		1:00 PM	3:00 PM	Session 16 - Scientific Computing
		4:00 PM	6:00 PM	TA Time

Week #5

MON	07/10/23	10:00 AM	12:00 PM	Session 17 - Simulation and Modelling
		1:00 PM	3:00 PM	Session 17 - Simulation and Modelling
		4:00 PM	6:00 PM	Session 18 - Differential Equations

TUE	07/11/23	10:00 AM	12:00 PM	Session 18 - Differential Equations
		1:00 PM	3:00 PM	Session 19 - Dynamical Systems
		4:00 PM	6:00 PM	Session 19 - Dynamical Systems

WED	07/12/23	10:00 AM	12:00 PM	Session 20 - Monte Carlo Methods
		1:00 PM	**3:00 PM**	**Guest Lecturer - Nick Brunn, IBM**
		4:00 PM	6:00 PM	Session 20 - Monte Carlo Methods

THU	07/13/23	10:00 AM	12:00 PM	Session 21 - Digital Circuits
		1:00 PM	3:00 PM	Session 21 - Digital Circuits
		4:00 PM	6:00 PM	Session 21 - Digital Circuits

FRI	07/14/23	10:00 AM	12:00 PM	Session 22 - Quantum Mechanics
		1:00 PM	3:00 PM	Session 22 - Quantum Mechanics
		4:00 PM	6:00 PM	TA Time

Week #6

MON	07/17/23	10:00 AM	12:00 PM	Session 22 - Quantum Mechanics
		1:00 PM	3:00 PM	Session 22 - Quantum Mechanics
		4:00 PM	6:00 PM	Session 23 - Quantum Circuits

TUE	07/18/23	10:00 AM	12:00 PM	TA Time
		1:00 PM	3:00 PM	Session 23 - Quantum Circuits
		4:00 PM	6:00 PM	Session 23 - Quantum Circuits

WED	07/19/23	10:00 AM	12:00 PM	Session 23 - Quantum Circuits
		1:00 PM	**3:00 PM**	**Guest Lecturer - Layla Hormozi, BNL**
		4:00 PM	6:00 PM	Session 24 - Quantum Algorithms

THU	07/20/23	10:00 AM	12:00 PM	Session 24 - Quantum Algorithms
		1:00 PM	3:00 PM	Session 24 - Quantum Algorithms
		4:00 PM	6:00 PM	TA Time

FRI	07/21/23	10:00 AM	12:00 PM	Session 24 - Quantum Algorithms
		1:00 PM	3:00 PM	Session 24 - Quantum Algorithms
		4:00 PM	**6:00 PM**	**Closing Ceremony - Kai Mei Fu, Deputy Dir C2QA**