Simple Syllabus

Tentative Schedule					
Week	**Day**	**Date**	**Topics**	**Required Reading**	**Course Outcome**
1	Mon	8/24	Basic quantum mechanics, Classical vs Quantum systems	1	1
	Wed	8/26	Quantum computer architectures	7	2
2	Mon	8/31	Complex numbers, Linear Algebra: vector, matrix operations	2.1	1
	Wed	9/2	Single qubit gates, Multiple qubit gates	4	1
3	Mon	9/7	Labor Day (University closed)		
	Wed	9/9	Quantum entanglement, Bell state, Asg1, Quiz1	1	1
4	Mon	9/14	Deutsch Algorithm	1	3
	Wed	9/16	Deutsch-Jozsa Algorithm	1	3
5	Mon	9/21	Bernstein-Vazirani Algorithm		3
	Wed	9/23	Simon's Algorithm		3
6	Mon	9/28	Period-Finding Algorithm		3
	Wed	9/30	Grover's search algorithm, Asg2, Quiz2	6.1	3
7	Mon	10/5	Amplitude amplification, Grover iteration limit	6.1	3
	Wed	10/7	Review		
8	Mon	10/12	Mid-term exam (5:00pm - 6:25pm)		
	Wed	10/14	Quantum Fourier Transform	5.1	3
9	Mon	10/19	Phase Estimation Algorithm	5.2	3
	Wed	10/21	Shor's Order-Finding and Factorization	5.3, 5.4	3
10	Mon	10/26	Quantum Counting	6.3	4
	Wed	10/28	Quantum Walk Search Algorithm, Asg3, Quiz3		4, 5
11	Mon	11/2	Quantum Teleportation		4
	Wed	11/4	Quantum error correcting code	10.1, 10.2	4
12	Mon	11/9	Quantum Key Distribution	12.6	4
	Wed	11/11	Veterans Day (University closed)		
13	Mon	11/16	Quantum measurement	9	5
	Wed	11/18	No Cloning theorem		
14	Mon	11/23	Scalability in real quantum systems, Asg4, Quiz4		5
	Wed	11/25	Thanksgiving Holiday Break (University closed)		
15	Mon	11/30	Overview of Quantum Machine Learning algorithms		4
	Wed	12/2	Review		
16	Mon	12/7	Final exam (5:00pm – 7:00pm)		
	Wed	12/9	No class		