Department of Physics and Astronomy
Academic Checklist
Quantum Computing and Quantum Information Certificate

Name			Fall
ID			Spring
Total Earned Credits			Fall & Spring
Expected Graduation			Unknown
Current Date	**Tuesday, August 02, 2022**		

	Course	Title	Credits	Notes
0	**Required Course (3 credit hours):**			
	PHYS 1470	Foundations of Quantum Computing & Quantum Information (3)	0	
0	**Quantum Related Elective Courses (Choose 6-9 credit hours):**			
	CHEM 1410	Physical Chemistry 1 (3)	0	CHEM 1410 or 1480
	CHEM 1430	Physical Chemistry Laboratory 1 (1)	0	
	CHEM 1480	Intermediate Physical Chemistry (3)	0	CHEM 1480 or 1410
	CHEM 1620	Atoms, Molecules and Materials (3)	0	
	CHEM 2120	Descriptive Inorganic and Organometallic Chemistry (3)	0	
	CS 1613	Quantum Computation (3)	0	
	ECE 1232	Introduction to Lasers & Optical Electronics (3)	0	
	ECE 1247	Semiconductor Device Theory (3)	0	
	ECE 1272	Simulation and Design of Silicon Photonics (3)	0	
	ENGR 1066	Introduction to Solar Cells and Nanotechnology (3)	0	
	HPS 1612	Philosophy of 20th Century Physics (3)	0	
	MEMS 1058	Electromagnetic Properties of Materials (3)	0	
	PHYS 0477	Introduction to Thermodynamics, Relativity and Quantum Theory (4)	0	
	PHYS 0330	Physics and Quantum Computing Seminar (1)	0	
	PHYS 0520	Modern Physical Measurements (3)	0	
	PHYS 1370	Introduction to Quantum Mechanics 1 (3)	0	
	PHYS 1371	Introduction to Quantum Mechanics 2 (3)	0	
	PHYS 1374	Introduction to Solid State Physics (3)	0	
	CHEM 1710	Undergraduate Research (3)	0	Research must be quantum based
	CS 1950	Directed Research: Capstone (3)	0	Research must be quantum based
	CS 1951	Directed Research		Research must be quantum based
	ECE 1893	ECE Undergraduate Research Project		Research must be quantum based
	INFSCI 1710	Directed Research (3)	0	Research must be quantum based
	PHYS 1903	Directed Research		Research must be quantum based
0	**Quantum Adjacent Elective Courses (Choose 3-6 credit hours):**			
	CHEM 1000	Mathematics for Chemistry (4)	0	
	CHEM 1420	Physical Chemistry 2 (3)	0	
	CHEM 1440	Physical Chemistry Laboratory 2 (1)	0	
	CS or CMPINF 0401	Intermediate Programming Using Java (4)	0	
	CS 0441	Discrete Structures for CS (3)	0	
	CS 0445	Data Structures (3)	0	
	CS 1501	Algorithms and Data Structures 2 (3)	0	
	CS 1502	Formal Methods in Computer Science (3)	0	
	CS 1510	Algorithm Design (3)	0	
	CS 1656	Introduction to Data Science (3)	0	
	CS 1675	Introduction to Machine Learning (3)	0	
	CS 1678	Introduction to Deep Learning (3)	0	
	ECE 0201	Digital Circuits and Systems (4)	0	
	ECE 0301	ECE Problem Solving with C++ (3)	0	
	ECE 1250	Nanotechnology & Nano-Engineering (3)	0	
	ENGCMP 0530	Writing for the Sciences (3)	0	
	ENGR 1453	Data Science: Statistical Learning, Modeling & Prediction (3)	0	
	HPS 1653	Intro to Philosophy of Science (3)	0	
	IE 1081	Operterations Research (3)	0	
	IE 1082	Probabilistic Methods in Operations Research (3)	0	
	INFSCI 0310	Computation in Information Science (3)	0	
	INFSCI 0610	Networks and Information (3)	0	
	INFSCI 1470	Immersive Media Technologies (3)	0	
	INFSCI 1520	Information Visualization (3)	0	
	INFSCI 1530	Data Mining (3)	0	
	INFSCI 1600	Security and Privacy (3)	0	
	INFSCI 1630	Communication Networks (3)	0	
	INFSCI 1640	Wireless Networks (3)	0	
	PHYS 1341	Thermodynamics and Statistical Mechanics (3)	0	
	PHYS 1351	Electricity and Magnetism (3)	0	
	PHYS 1361	Wave Motion and Optics (3)	0	