Quantum information science is an interdisciplinary field that seeks to understand the analysis, processing, and transmission of information using quantum mechanics principles. It combines the study of Information science with quantum effects in physics. This includes theoretical issues in computational models and more experimental topics in quantum physics, including what can and cannot be done with quantum information.

The idea of utilizing quantum mechanics to process information has grown from computation and communication to encompass diverse topics such as sensing and simulations in biology and chemistry. In addition to the extensive experimental efforts to build controllable large-scale quantum devices, theory research in quantum information investigates several themes which include computation, communication, precision measurement, and fundamental quantum science.

The Quantum Information Science & Engineering minor teaches students about a growing field of science and technology, combining and drawing on the disciplines of physical science, mathematics, computer science, and engineering. Its aim is to understand how certain fundamental laws of physics discovered in the last century can be harnessed to dramatically improve the acquisition, transmission, and processing of information. The exciting scientific opportunities offered by this field of study are attracting the interest of a growing community of scientists and technologists, and are promoting unprecedented interactions across traditional disciplinary boundaries.

Core Requirements

**MATH** 2114 Elementary Linear Algebra or 3144 Linear Algebra I
**PHYS** 2254 Hello Quantum World!
**PHYS** 4254 Quantum Information Technologies
**PHYS** 4264 Quantum Optics and Qubit Processors or CS 4134 Quantum Computation and Information Processing
**CHEM/PHYS** 3684 Quantum Software I
**CHEM/PHYS** 4684 Quantum Software II

Restricted Elective Choices

**PHYS** 3314 Intermediate Laboratory, 3324 Modern Physics or 3406 Intermediate Electricity and Magnetism
**CS** 3114 Data Structures and Algorithms
**CMDA/CS/STAT** 3654 Introduction to Data Analytics and Visualization
**CHEM** 3616 Physical Chemistry
**ECE** 2024 Circuits and Devices

And Many More!

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