A minimum of 28 units with a cumulative GPA of at least 3.0 is required to earn the MS in Quantum Information Science degree.

**Foundational Courses** (three required courses - 12 units)

EE 514 Quantum Error Correction (4 units)
EE 520 Introduction to Quantum Information Processing (3 units)
PHYS 513 Applications of Quantum Computing (New)

**Core Courses** (take at least two courses from this list - 7-8 units)

EE 589 Quantum Information Theory (New)
PHYS 550 Theory of Open Quantum Systems (New)
PHYS 559 Quantum Devices (New)
PHYS 660 Quantum Information Science & Many-Body Physics (New)

**Approved Elective Courses** (7-8 units)

CHEM 544 Introduction to Quantum Chemistry (4 units)
CHEM 545 Theory and Practice of Molecular Electronic Structure (4 units)
CHEM 555 Computational Quantum Chemistry: Methods and Applications (2-4 units)
CSCI 513 Autonomous Cyber-Physical Systems (4 units)
CSCI 556 Introduction to Cryptography (4 units)
CSCI 570 Analysis of Algorithms (4 units)
CSCI 596 Scientific Computing and Visualization (4 units)
CSCI 653 High Performance Computing and Simulations (4 units)
DSCI 510 Principles of Programming for Data Science (4 units)
EE 503 Probability for Electrical and Computer Engineers (4 units)
EE 506 Semiconductor Physics (4 units)
EE 507 Micro- and Nano-Fabrication Technology (3 units)
EE 508 Nano-Fabrication Lithography (3 units)
EE 510 Linear Algebra for Engineering (4 units)
EE 539 Engineering Quantum Mechanics (4 units)
EE 540 Introduction to Quantum Electronics (4 units)
EE 553 Computational Solution of Optimization Problems (3 units)
EE 565 Information Theory and Its Application to (Big) Data Sciences (4 units)
EE 577a VLSI System Design (3 units)
EE 577b VLSI System Design (3 units)
EE 589 Quantum Information Theory (New)
EE 590 Directed Research (1-12 units)
EE 598 Electrical Engineering Research Seminar (1 unit)
PHYS 438a Introduction to Quantum Mechanics and its Applications (4 units)
PHYS 438b Introduction to Quantum Mechanics and its Applications (4 units)
PHYS 500 Graduate Colloquium (1 unit)
PHYS 516 Methods of Computational Physics (3 units)
PHYS 558a Quantum Mechanics (3 units)
PHYS 558b Quantum Mechanics (3 units)
PHYS 590 Directed Research (1-12 units)
PHYS 660 Quantum Information Science and Many-Body Physics (3 units)
PHYS 668 Advanced Quantum Mechanics (3 units)
PHYS 678 Relativistic Quantum Field Theory (3 units)
PHYS 680 Advanced Quantum Field Theory (New)