Programs Offered

All master's degree programs require a minimum of 50 percent of the non-thesis credit hours applied to the degree to be 400-level courses or above.

Program Requirements for M.S. in Computer Science
The Master of Science in Computer Science major is designed to give students the knowledge and tools necessary for studying important current issues in computer science to obtain productive employment or pursue advanced degrees. It emphasizes foundational knowledge in computer science and programmatic application of these fundamental concepts in leading-edge applications. It is appropriate for a range of students, including industry computing professionals seeking career advancement, students wishing to expand on their undergraduate computer science work and/or prepare for doctoral degree, and individuals wishing to make a career change.

This degree requires the student to complete a 33-semester-hour thesis, project, or course option. It assumes an undergraduate knowledge base in computer science, which students with some types of computer-related undergraduate degrees will typically have acquired. Students lacking sufficient background will need to complete fundamental courses before enrolling in the MS Computer Science degree courses.

Students lacking sufficient background should expect to complete some or all of the following courses with a grade of B or better:
- IT 168: Structured Problem Solving Using the Computer
- IT 179: Introduction to Data Structures
- IT 180: C++ Programming
- IT 225: Computer Organization
- IT 279: Algorithms and Data Structures
- IT 383: Principles of Operating Systems
- IT 378: Database Processing

The graduate coordinator will determine specific requirements.

Option I—Thesis: This 33-hour option requires:
- 18-hour core: IT 426, 427, 428, 441, 448, 483.
- 6 hours: IT 499 Master's Thesis

Option II—Project: This 33-hour option requires:
- 18-hour core: IT 426, 427, 428, 441, 448, 483.
- 6 hours: IT 494 Master's Project

Option III—Courses: This 33-hour option requires:
- 18-hour core: IT 426, 427, 428, 441, 448, 483.

Program Requirements for M.S. in Information Systems
Within each sequence the student may choose to complete a 36-semester hour thesis option, a 39-semester hour project option, or a 39 semester hour course option. This degree assumes an undergraduate knowledge base in information technology, which students with computer-related undergraduate degrees will typically have acquired. Students lacking sufficient background will need to complete fundamental courses before enrolling in the Information Systems core courses.

Students lacking sufficient background should expect to complete some or all of the following courses with a grade of B or better: IT 250 Fundamentals of Information Assurance and Security, IT 254 Hardware and Software Concepts, IT 261 Systems Development I, IT 275 Java as a Second Language OR IT 168 Structured Problem Solving Using the Computer AND IT 178 Computer Applications Programming, IT 276 Data Communications, IT 378 Database Processing. The graduate coordinator will determine specific requirements.

The MS in Information Systems has a 21-hour core requirement: IT 351 or 357, 377, 432, 463, 478, 496, and 497.
**Information Technology**

- IT 497, must be taken during the first year in the program.

**Geographic Information Systems Sequence:**

**Option I—Thesis:** This 36-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 499 Master's Thesis
- 6 hours: GEO 303, 304
- 3 hours: GEO 488 or IT 467

**Option II—Project:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 494 Master's Project
- 6 hours: GEO 303, 304
- 6 hours: 2 of the following: GEO 305, 488; IT 341, 353, 467

**Option III—Courses:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 499 Master's Thesis
- 6 hours: GEO 303, 304
- 3 hours: GEO 488 or IT 467
- 3 hours: ENG 349
- 6 hours: 2 of the following: GEO 305, 488; IT 341, 353, 467

**Network and Security Management Sequence:**

**Option I—Thesis:** This 36-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 499 Master's Thesis
- 6 hours: IT 450, 477
- 3 hours: 1 of the following: IT 351, 357, 370, 374, 376, 379, 381

**Option II—Project:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 494 Master's Project
- 6 hours: IT 450, 477
- 6 hours: 2 of the following: IT 351, 357, 370, 374, 376, 379, 381

**Option III—Courses:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 499 Master's Thesis
- 6 hours: IT 467, 468
- 3 hours: 1 of the following: IT 341, 368, 485

**Internet Application Development Sequence:**

**Option I—Thesis:** This 36-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 499 Master's Thesis
- 9 hours: IT 353, 354, 358

**Option II—Project:** This 39-hour sequence requires:
- 21-hour core: IT 351 or 357, 432, IT 478, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 494 Master's Project
- 9 hours: IT 353, 354, 358
- 3 hours: 1 of the following: IT 368, 467, 468, 485

**Option III—Courses:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 3 hours: ENG 349
- 9 hours: IT 353, 354, 358

**Systems Development Sequence:**

**Option I—Thesis:** This 36-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 499 Master's Thesis
- 6 hours: IT 467, 468
- 3 hours: 1 of the following: IT 341, 368, 485

**Option II—Project:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 6 hours: IT 494 Master's Project
- 6 hours: IT 467, 468
- 6 hours: 2 of the following: IT 341, 368, 485

**Option III—Courses:** This 39-hour sequence requires:
- 21-hour core: IT 432, IT 478, IT 351 or 357, IT 497, IT 377, IT 463, IT 496
- 3 hours: ENG 349
- 6 hours: IT 467, 468
Graduate Certificate Programs
The School of Information Technology offers several graduate certificate programs. The certificates are designed for individuals who would like to gain specialized knowledge in one of the areas of the certificates without the commitment of completing an entire degree program. The certificate programs provide students with focused studies and exposure to the very latest topics and trends in the IT industry and various opportunities for career advancement. Courses completed as part of the certificates may also be counted towards the requirements of the Master of Science in Computer Science or Information Systems with official admission to the corresponding graduate program. Students must apply for the certificate before beginning coursework.

Data Science: Computer Science Graduate Certificate
The Data Science: Computer Science Graduate Certificate is designed to provide a specialized education in emerging technologies for students who seek further studies in data science. The certificate is intended to prepare students to meet the growing demand for qualifications in this field.

Three out of the four core courses, namely IT 441, 444, 448, and 452, are required to earn the certificate. Prerequisites: IT 279 and 378 or consent of the graduate advisor.

Enterprise Computing Systems Graduate Certificate
The Enterprise Computing Systems Graduate Certificate is designed for IT professionals who are interested in pursuing further professional development in the mainframe-based large scale enterprise computing systems area. This certificate program prepares students to apply computing system development and integration knowledge to large scale enterprise systems.

Three courses, IT 330, 332, and 392 are required to earn the certificate. Prerequisites: IT 225 or 254, IT 261, or consent of the graduate advisor.

Information Assurance and Security Graduate Certificate
The Information Assurance and Security Graduate Certificate is designed for IT professionals who are interested in continuing education in methodologies and tools necessary for protecting information and information systems. The certificate provides an in-depth study of protecting the confidentiality, availability, and integrity of information using technology, people, and policy.

Three core courses, IT 351, 357 and 450 are required to earn the certificate. Prerequisites: IT 250, IT 261 and IT 276 or consent of the graduate advisor.

Internet Application Development Graduate Certificate
The Internet Application Development Graduate Certificate is designed to provide a specialized education in emerging technologies for students who seek further studies in Web development. The certificate is intended to prepare students to meet the growing demand for qualifications in this field.

Two core courses, IT 353, 354, and one of IT 358, 467, 468, or 485, are required to earn the certificate. Prerequisites: IT 261 and 276 or consent of the graduate advisor.

Network and Telecommunications Management Graduate Certificate
The Network and Telecommunications Management Graduate Certificate is designed for IT professionals who are interested in pursuing further professional development in the Telecommunications and Networking area. This certificate program prepares students to better understand different network and telecommunications technologies and management methodologies.

Two core courses, IT 381 and 477 and one of IT 376 or 377 are required to earn the certificate. Prerequisite: IT 276 or consent of the graduate advisor.

Systems Analyst Graduate Certificate
The Systems Analyst Graduate Certificate is designed for IT professionals who are interested in pursuing further professional development in the Systems Analyst area. This certificate program prepares students to better understand different information systems development methodologies and develop the skills to manage information systems projects.

Three courses, IT 432, 463, and 478, are required to earn the certificate. Prerequisites: IT 261 and 378 or consent of the graduate advisor.

Information Technology Courses
Beginning with the 2016-2018 Graduate Catalog, 300-level Information Technology courses are no longer designated with .05 after the number. Only 300-level courses approved for graduate credit may be counted toward a graduate program.
Information Technology Courses:  
coursefinder.illinoisstate.edu/directory/it/

All Courses:  
coursefinder.illinoisstate.edu/directory/