Computer Science, M.S.

COLLEGE OF SCIENCE AND TECHNOLOGY (http://cst.temple.edu)

About the Program

The M.S. in Computer Science emphasizes a general approach to the study of computing, including courses in artificial intelligence, collaborative systems, computer architecture, database systems, graphics and image processing, networking and communications, operating systems, software engineering, and theoretical areas. The curriculum is not oriented toward any specific applications area of computing but emphasizes general graduate-level studies in computing, preparing students for careers in systems analysis, teaching, and research.

Time Limit for Degree Completion: 5 years

Campus Location: Main

Full-Time/Part-Time Status: Students complete the degree program through classes offered after 4:30 p.m. The degree program can be completed on a full- or part-time basis.

Areas of Specialization: Research interests of faculty include:

- Analysis of algorithms
- Artificial intelligence
- Communication and networks
- Computer architecture
- Data analytics
- Digital forensics
- Expert systems
- Flexible and intelligent manufacturing systems
- Graphics
- High-performance computing
- Information security and assurance
- Intelligent CAI systems
- Management information and database systems
- Natural language processing
- Network security
- Parallel and distributive processing and operating systems
- Programming languages
- Sensory and image processing
- Software engineering
- Theory of automata and computation
- Wired and wireless networks

Job Prospects: Graduates often find employment as data analysis consultants, product designers, researchers, and software developers. Alternatively, many become involved in the design and implementation of new applications software or the planning and evaluation of computer-based systems. Prospective employers include the government or industrial firms that utilize computers for research and/or production purposes.

Non-Matriculated Student Policy: Non-matriculated students are permitted to take a maximum of two graduate-level CIS courses.

Financing Opportunities: Assistantships provide a stipend and full-time tuition to qualified students, but are typically reserved for doctoral students.

Admission Requirements and Deadlines

Application Deadline:

Fall: December 15
Spring: August 1

Applications are reviewed as they are received and can sometimes be considered after the deadline.

APPLY ONLINE to this graduate program
Letters of Reference:
Number Required: 3

From Whom: Letters of recommendation should be obtained from Computer Science faculty and professionals.

Coursework Required for Admission Consideration: A minimum of one year of programming and data structures using the C++ or Java programming language and one year of theoretical calculus are required. This includes coursework equivalent to CIS 1068 Program Design and Abstraction, CIS 2168 Data Structures, MATH 1041 Calculus I, and MATH 1042 Calculus II.

Bachelor’s Degree in Discipline/Related Discipline: A baccalaureate degree in Computer Science is required. If the applicant has insufficient undergraduate coursework in Computer Science, s/he will need to take undergraduate courses to address any deficiencies. Students without a Computer Science degree are typically required to take the following courses, which cannot be counted for credit toward the M.S. degree:

- CIS 2107 Computer Systems and Low-Level Programming 4
- CIS 2166 Mathematical Concepts in Computing II 4
- CIS 2168 Data Structures 4
- CIS 3207 Introduction to Systems Programming and Operating Systems 3-4
  or CIS 5012 System Software and Operating Systems
- CIS 3223 Data Structures and Algorithms 3
  or CIS 5011 Programming and Data Structure

Statement of Goals: Approximately 500 to 1,000 words include your specific interest in Temple's program, your research goals, your future career goals, and your academic and research achievements.

Standardized Test Scores:
GRE: Required. Scores should be in the 75th percentile on the quantitative section and 25th percentile on the verbal section. Most students submit scores far above the minimums.

For applicants whose native language is not English, the TOEFL, IELTS, or PTE Academic exam is required:
- TOEFL: 85 iBT or 563 PBT minimum
- IELTS: 7.0 minimum
- PTE Academic: 58 minimum

Resume: Current resume required.

Transfer Credit: Graduate-level Computer Science coursework obtained no more than five years prior to the student’s matriculation in the graduate program may be transferred into the Computer Science M.S. program. The student must have earned an “A” in the course, and must submit a rationale for applying the credits to the current graduate program. The maximum number of credits a student may transfer is 6.

Program Requirements

General Program Requirements:
Number of Credits Required Beyond the Baccalaureate: 30

Required Courses:

Core Courses

- CIS 5511 Programming Techniques 3
- CIS 5512 Operating Systems 3
- CIS 5513 Automata and Formal Languages 3
- CIS 9615 Design and Analysis of Algorithms 3

Project or Thesis Courses

- CIS 9991 Project in Computer Science (for 3 credits)
- CIS 9996 Thesis in Computer Science (for 6 credits)

and five electives

and four electives

Select electives from the following CIS courses, which are grouped topically, or take courses outside the department with the approval of the CIS Graduate Committee:

- Databases and Intelligent Systems
CIS 5516  Principles of Data Management
CIS 5524  Analysis and Modeling of Social and Information Networks
CIS 5525  Neural Computation
CIS 5526  Machine Learning
CIS 5527  Data Warehousing, Filtering and Mining
CIS 5535  Probabilistic Graph Models
CIS 5538  Text Mining and Language Processing
CIS 5543  Computer Vision
CIS 5603  Artificial Intelligence
CIS 9601  Computer Graphics and Image Processing
CIS 9651  Artificial Intelligence, Heuristic Models, and Education
CIS 9664  Knowledge Discovery and Data Mining
CIS 9665  Advanced Topics in Data Base Systems

**Systems and Networking**
CIS 5617  Computer Networking and Communication
CIS 5618  Energy Management in Data Centers and Beyond
CIS 5636  Ad Hoc Networks
CIS 5637  Network & Information Security
CIS 5639  Wireless Network and Communication
CIS 5642  Computer Architecture
CIS 5644  Distributed Systems
CIS 9666  Advanced Networks and Client-Server Computing
CIS 9669  Distributed and Parallel Computer Systems

**Software Engineering**
CIS 9602  User Interface Design and Systems Integration
CIS 9618  Web Applications Development
CIS 9668  Design and Development of E-Commerce Systems

**Topic and Independent Study**
CIS 5590  Topics in Computer Science
CIS 9182  Independent Study
CIS 9190  Seminars in Computer and Information Science
CIS 9282  Independent Study
CIS 9590  Seminar in Advanced Topics in Computer Science

**Total Credit Hours**: 30

1. Select either the Project Course or Thesis Course grouping.
2. Electives are typically selected from graduate CIS courses, which are limited to the courses listed above. Note, however, that coursework may be taken from other departments upon approval of the CIS Graduate Committee. Further, at least 1 credit of coursework (or research experience) outside of the Department of Computer and Information Sciences is required. To fulfill this 1-credit minimum requirement, students enroll in CIS 9182 or CIS 9282, an Independent Study course. This requirement can be waived for students with adequate work experience.

**Culminating Events:**
*Project:*
Students can elect to complete a project as the culminating event. CIS 9991 Project in Computer Science is taken for 3 credits under the close supervision of CIS Graduate Faculty.

*Thesis:*
Alternately, students can elect to undertake a thesis. CIS 9996 Thesis in Computer Science is taken for 6 credits.

**Contacts**

**Program Web Address:**
http://www.temple.edu/cis/graduate/
Department Information:
Dept. of Computer and Information Sciences
313 Science and Education Research Center
1925 N. 12th Street
Philadelphia, PA 19122-1801
cisadmit@temple.edu
215-204-8450

Mailing Address for Application Materials:
Dept. of Computer and Information Sciences
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