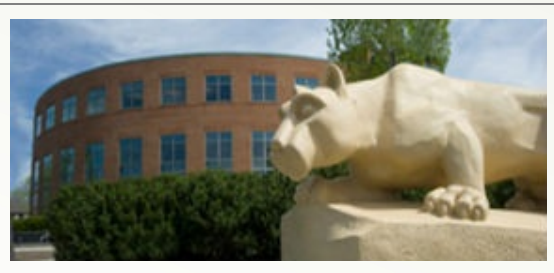## Master of Science in Computer Science

Designed to prepare students for employment in industry/ government or for further study in a doctoral program, this program emphasizes practical concerns and theoretical background, providing students with the skills and knowledge to perform a variety of tasks, including the development of:

- Scientific and engineering applications
- Safety and/or security critical systems
- Systems software
- Distributed applications
- Solutions to computationally hard problems

While not intended as preparation for subsequent entrance to a Ph.D. program, this goal is not precluded. After specific course requirements are met, students may select appropriate electives to suit their individual interests within the program. Anticipated areas of interest include software engineering, systems programming, computer network and security, and artificial intelligence.

Contact

Academic Program Coordinator
Jamie Bell
717 948 6081
jlb8348@psu.edu

Professor-in-Charge
Sukmoon Chang, Ph.D.

Content reviewed and approved Thu June 13, 2024 9:23:01 am

PennState
Harrisburg

777 West Harrisburg Pike
Middletown, PA 17057
Phone: 800-438-7941
Fax: 717-948-6401

PennState
Harrisburg

School of Science, Engineering, and Technology

Master of Science in Computer Science

Curriculum

A total of 30 graduate credits (400 level or above) is required for the Master of Science in Computer Science. Students are required to take the following courses: COMP 505, 511, 512, and 519. Additionally, students are required to complete either a thesis or a paper as described below. Students who believe that they have completed a course substantially similar to one of the specific course requirements may apply to have their previous work evaluated for possible exemption from that requirement. If the exemption is granted, another approved course shall be taken in place of that required course. The remaining 18 credits must be completed according to one of the following options:

1. Thesis Option: Research into a specific computer science problem, development of a scholarly written paper, and an oral defense. This option requires: 6 credits of COMP 600, 3 additional credits from approved 500-level electives in computer science, mathematics, engineering, and information systems courses, and 9 credits from approved 400-and 500-level electives in computer science, mathematics, engineering, and information systems courses.
2. Paper Option: In-depth study of a specific computer science problem, development of a written paper or project, and an oral defense. This option requires: 3 credits of COMP 594, 9 credits from approved 500-level electives in computer science, mathematics, engineering, and information systems courses, and 6 credits from approved 400- and 500-level electives in computer science, mathematics, engineering, and information systems courses.

A maximum of 9 transfer credits will be allowed for course work completed as a graduate student at another institution.

Courses
Prescribed Courses

15-18 credits

- COMP 505 Theory of Computation (3). Prerequisite: CMPSC 463
- COMP 511 Design and Analysis of Algorithms (3). Prerequisites: CMPSC 463
- COMP 512 Advanced Operating Systems (3). Prerequisite: CMPSC 472
- COMP 519 Advanced Topics In Database Management Systems (3). Prerequisites: MATH 315, CMPSC 430
- COMP 594 Master's Studies (3) or COMP 600 Thesis Research (1-6). Prerequisites: A minimum of two of the 500-Level Computer Science required courses or permission of the program

Additional Courses

After specific course requirements are met, appropriate selection of electives enables students to meet individual interests. Students in the Computer Science graduate program at Penn State Harrisburg must take at least 21 or 24 (depending on the option) of the required 30 graduate credits at the 500 level. Certain 400-level courses may be counted toward the remaining hours. These additional courses include select Computer Science (CMPSC), Mathematical Science (MATH), and Information Systems (INFSY) courses. A listing of these courses is available on the program website.

Visit https://goo.gl/XReBnV for complete details.

Program Requirements for Admission

Requirements	More Information
GPA	A minimum GPA of 2.75 (on a 4.0 scale).
Education	✓ A baccalaureate degree in Computer Science or a related field from an accredited institution.
	✓ While a bachelor's degree in Computer Science is not required, admission without deficiency requires that an applicant has completed the following courses or approved equivalents. If these courses are not taken before admission to the program, they may be taken at Penn State Harrisburg, but the student will receive at most 3 credits toward the M.S. degree for these courses.
	✓ Analysis of Algorithms (CMPSC 463)
	✓ Operating Systems (CMPSC 472)
	✓ Database Design (CMPSC 430)
	✓ Linear or Matrix Algebra (MATH 430)
	✓ In addition, the following courses are required for admission without deficiency. If these courses or approved equivalents are not taken before admission to the program, they may be taken at Penn State Harrisburg, but no credit from these courses will be applied toward the M.S. degree.
	✓ Calculus, one year (MATH 140 and 141)
	✓ Discrete Mathematics (CMPSC 360)
Supporting Materials	✓ Three letters of reference, at least one of which is from an academic source.
	✓ A letter outlining significant work experience and academic and career objectives.
	✓ At the discretion of the program, students may be required to provide scores from the Graduate Record Exam (GRE) and/or the GRE subject test in computer science.
	✓ GRE test scores are required for those indicating interest in an assistantship.

Application Deadline

Semester	Deadline
Fall	May 31
Spring	September 30