COMPUTER SCIENCE (GREAT VALLEY)

Graduate Program Head	Raghu Sangwan
Program Code	CSC
Campus(es)	World Campus
Degrees Conferred	Master of Computer Science (M.C.S.)
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=CSC)

The Master of Computer Science (M.C.S.) degree is a 30-credit online, interdisciplinary master's program that aims to prepare students to drive the design, development, and deployment of software systems across a broad array of application domains to meet contemporary social and technical challenges. Graduates will work in diverse positions that require them to collect, compile, and analyze datasets; develop software; design scientific and engineering applications; design and prototype AI systems; or solve computational problems.

Admission Requirements

Applicants apply for admission to the program via the J. Jeffrey and Ann Marie Fox Graduate School application for admission (https://gradschool.psu.edu/admissions/how-to-apply/). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (https://gradschool.psu.edu/graduate-education-policies/).

Admission to the M.C.S. program will be based on baccalaureate academic records, applicable work experience, and two letters of recommendation from a previous professor or supervisor who can attest to the applicant's academic potential. Applicants with undergraduate degrees in computer science, engineering, or mathematics or closely related fields may apply. Students from other disciplines will be considered based on prior coursework, including the Entrance Requirements for Mathematics and Programming stated below. An applicant must hold either (1) a bachelor's degree from a U.S. institution accredited by an approved agency or (2) a postsecondary degree that is equivalent to a U.S. baccalaureate degree earned from an officially recognized degree-granting international institution. This degree must be from an officially recognized degree-granting institution in the country in which it operates. Applications must include a statement of professional goals, a curriculum vita or resume, and two letters of recommendation. An undergraduate cumulative grade-point average of 3.0 or better on a 4.0 scale in the final two years of undergraduate studies is required.

Entrance Requirement regarding Mathematics: Applicants must complete Calculus I equivalent to Penn State University's MATH 140.

Entrance Requirement regarding Programming: Applicants must complete two introductory-level programming courses where both courses used the same language. If an applicant believes his/her work experience satisfies the background, he/she should include a recommendation letter from a technical colleague describing the applicant's coding contributions at work.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/) for more information.

Degree Requirements

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (https://gradschool.psu.edu/graduate-education-policies/).

The M.C.S. degree requires a minimum of 30 credits at the 400, 500, or 800 level while maintaining an average grade-point average of 3.0 or better in all course work, including at least 18 credits at the 500 level or 800-level. The program curriculum includes 15 credits of required courses, 12 credits of electives, and a 3-credit capstone course.

Code	Title	Credits
Required Courses		
CSC 810	Algorithms and Programming	3
CSC 820	Large-Scale Software Systems	3
CSC 830	Distributed Systems (Distributed Systems)	3
CSC 840	Big Data Systems	3
CSC 850	Machine Learning Systems	3
Electives		
An additional 12 credits of elective courses must be selected from the approved list of elective courses maintained by the graduate program office.		12
Culminating Experience		
CSC 894	Computer Science Capstone	3
Total Credits		**30**

Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policy GCAC-218 Minors (https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-218-minors/).

Student Aid

World Campus students in graduate degree programs may be eligible for financial aid. Refer to the Tuition and Financial Aid section (https://www.worldcampus.psu.edu/tuition-and-financial-aid/) of the World Campus website for more information.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Computer Science (CSC) Course List (https://bulletins.psu.edu/university-course-descriptions/graduate/csc/)

Learning Outcomes

1. **KNOW:** Construct large-scale, distributed, big data and AI systems.
2. **APPLY / CREATE:** Analyze complex problems, design solutions, and implement systems to address real-world challenges.

3. **COMMUNICATE:** Demonstrate computer science knowledge and skills to effectively communicate with project stakeholders throughout a development project.
4. **THINK:** Evaluate differences among state-of-the-art techniques to determine the appropriate approach for creating complex software systems.
5. **PROFESSIONAL PRACTICE:** Articulate ethical standards, values, and best practices of computer science professional communities.

Contact

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