

Applied Computer Science

The Master of Applied Computer Science (MACS) degree provides a strong, interdisciplinary foundation in computer science for working professionals who come from non-mathematical or non-engineering disciplines and who want to enter the field of computing. The program focuses on in-demand, practical, and hands-on computational skills including databases, networks, web development, security, systems administration, and software development. Online course delivery provides a flexible educational experience for working adults.

This program is part of a partnership between the School of Continuing & Professional Studies and the Sever Institute in the McKelvey School of Engineering. The partnership serves working adults in the St. Louis region, bringing critical skills to students who want to further their academic credentials and who are interested in a new career in computing. A significant aspect of this program is to provide an academic bridge for students from overlooked communities. This program is partially funded through a grant from the MS Pathways to Computing Consortium, a group of 14 U.S. universities seeking to broaden access to the computing field.

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Degree Requirements

Master of Applied Computer Science

The Master of Applied Computer Science consists of 30 units of graduate course work.*

Required courses (21 units; course numbers and listings to come):

- Foundations of Object-Oriented Programming (3 units; Bridge II course*)
- Foundations of Data Engineering (3 units; Bridge II course*)
- Introduction to Cloud Computing (3 units; Bridge II course*)
- Full-Stack Software Development (3 Units)
- Database Programming and Development (3 Units)
- Introduction to Agile Development and Scrum (3 Units)
- Applied Computer Science Practicum (3 Units)

In addition, students are required to take 9 units of elective courses from the following list:

Elective courses (9 units; course numbers and listings to come):

- Modern Data Architecture (3 Units)
- Introduction to Development Security Operations (DevSecOps) (3 Units)
- Web Development (3 Units)
- Introduction to Machine Learning (3 Units)
- Introduction to Cybersecurity (3 Units)
- Applied Research Study (3 Units)

This program is offered either mostly or fully online. Students entering the U.S. on an F-1 or J-1 Visa must enroll in a program full time. F-1 students are only permitted to enroll in one online course per semester and J-1 students may only enroll in non-credit online courses that do not count toward their degree program. The School of Continuing & Professional Studies (CAPS) cannot guarantee face-to-face enrollment options each semester of full time enrollment, therefore cannot issue an I-20 or DS 2019 to F-1 and J-1 students for this program. If you are an F-1 or J-1 student and wish to enroll in a CAPS program while here on a Visa, please contact our recruitment team to discuss your options for face-to-face program enrollment. F-1 and J-1 students should not enroll in online courses or programs without first consulting the university's Office for International Students and Scholars (OISS).

- * New students without evidence of programming and discrete math proficiency will be required to take up to two introductory bridge courses (Bridge part I). The two bridge courses will provide necessary knowledge for students with no previous education in computer science through foundational course work in programming and relevant math. Additional bridge courses (Bridge part II) are included as the first three core courses required in the program. Upon successful completion of the Bridge part I courses, the student is automatically admitted to the Master of Applied Computer Science program. Successful completion of four more core courses and three elective courses after earning the Applied Computer Science certificate will lead to the Master of Applied Computer Science degree.

Courses

Courses for this new program will be developed and listed soon. Visit the CAPS website for up-to-date program course listings.