COMPUTER SCIENCE, M.S.

Saint Louis University's master's program in computer science is designed to prepare students for rewarding and in-demand careers that leverage the power of computers, algorithms and data analyses to impact the world in a positive manner.

Program Highlights

SLU's graduate program in computer science provides students with the depth of knowledge necessary to pursue advanced academic or technological work in a modern, ever-changing world.

Curriculum Overview

SLU's project-based curriculum emphasizes student teamwork and regular student-faculty interactions. Courses explore cutting-edge areas spanning computing systems, theory of computation and software development. Furthermore, students explore the application of their knowledge to a choice of areas such as artificial intelligence, computer security and high-performance computing. An optional master's thesis allows students to engage, alongside faculty, in cutting-edge research.

Fieldwork and Research Opportunities

With our location in the Midtown area of St. Louis, our students have access to a strong technology community, with operations for many Fortune 500 companies and a vibrant startup community. This provides outstanding opportunities for summer internships, for part-time work during the academic year and for future jobs after graduation.

Employers in St. Louis who show great interest in computer science students include Boeing, Centene, Citi, Deloitte, Enterprise, Express Scripts, KPMG, Maritz, MasterCard, Microsoft, Bayer and World Wide Technologies. Other students have worked for smaller companies or even started their own companies.

SLU's campus is within walking distance to the Cortex Innovation Community (https://cortexstl.org/), a vibrant 200-acre — and growing — innovation hub and technology district. Cortex is home to SLU's Research Innovation Group (https://www.slu.edu/research/faculty-resources/research-innovation-group/), which works on technology transfer and commercial partnerships. Cortex is also home to the weekly Venture Cafe (https://venturecafestl.org/), is a great place for students to connect with members of the tech community in a friendly and informal setting. Also in downtown St. Louis is the T-REX Technology Entrepreneur Center (http://www.downtowntrex.org/), a coworking space and technology incubator.

Careers

Careers related to computer science are routinely found on various "best jobs" lists because of their outstanding combination of excellent pay, satisfying work-life balance and personal reward in seeing the great impact of computing throughout society. As a sample of such listings:

- U.S. News 100 Best Jobs list for 2024 (https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs/) The top 100 included software developer (#3), IT manager (#4), information security analyst (#7), data scientist (#8), web developer (#21), computer systems analyst (#61), and computer network architect (#77).
- Glassdoor's 50 Best Jobs in America list for 2022 (https://www.glassdoor.com/List/Best-Jobs-in-America-LST_KQ0,20.htm) named enterprise architect as #1, and many other technology positions appear within the top 25: full stack engineer (#2), data scientist (#3), devops engineer (#4), machine learning engineer (#6), data engineer (#8), software engineer (#8), java developer (#9), back end engineer (#11), cloud engineer (#12) information security engineer (#15), back end engineer (#16), automation engineer (#21), and UX designer (#24).

Admission Requirements

A bachelor's degree in computer science or a closely related field is required. Most successful applicants have an undergraduate grade point average of 3.00 or better on a 4.00 scale.

Application Requirements

- Application completion
- Transcript(s)
- One letter of recommendation is required; two more are optional
- Résumé
- Statement of professional goals
- GRE general scores recommended

Requirements for International Students

All Saint Louis University admission policies and requirements for domestic students apply to international students. International students applying to SLU must also meet the following additional requirements:

- Demonstrate English language proficiency (https://catalog.slu.edu/academic-policies/office-admission/undergraduate/english-language-proficiency/)
- Academic records must include an English translation. Unofficial copies may be accepted in some cases for initial admission review, however official copies must be received prior to enrollment. Course-by-course transcript evaluations are accepted.

Students must submit financial documents to be issued an I-20 for their F-1 visa application. Proof of financial support must include:

- A letter of financial support from the person(s) or sponsoring agency funding the student's time at Saint Louis University
- A letter from the sponsor's bank verifying that the funds are available and will be so for the duration of the student's study at the University

Application Deadlines

Applications for January admission must be completed by the preceding Nov. 1, while applications for August admission must be completed by June 1. Applicants seeking scholarships or graduate assistantships are encouraged to apply earlier.

Review Process

Applications will be reviewed as they are completed. A panel of faculty members from the Department of Computer Science will decide on acceptance, and all applicants will be evaluated for potential scholarships or assistantships.

Tuition

Tuition	Total Program Cost
MS Computer Science	$42,000

Additional charges may apply. Other resources are listed below:

Net Price Calculator (https://www.slu.edu/financial-aid/tuition-and-costs/calculator.php)

Information on Tuition and Fees (https://catalog.slu.edu/academic-policies/student-financial-services/tuition/)

Miscellaneous Fees (https://catalog.slu.edu/academic-policies/student-financial-services/fees/)

Information on Summer Tuition (https://catalog.slu.edu/academic-policies/student-financial-services/tuition-summer/)

Scholarships, Assistantships and Financial Aid

The computer science department offers several forms of merit-based financial support for graduate students. These include possible tuition scholarships, and graduate assistantships that may include full or partial tuition, health insurance and a stipend for living expenses in exchange for the assistant's contributions to the teaching or research mission of the department. Students may also seek their own scholarships from a variety of independent organizations that support graduate education in STEM fields.

For more information, visit the Office of Student Financial Services (https://www.slu.edu/financial-aid/).

Learning Outcomes

1. Graduates will be able to design, implement, evaluate and test a software system that meets a given set of computing requirements.
2. Graduates will be able to apply computer science theory, knowledge of computer systems and software development fundamentals to produce computing-based solutions.
3. Graduates will be able to assess relevant literature and technical documents in the field of computing.
4. Graduates will be able to communicate effectively to both professional and general audiences in both oral and written forms.
5. Graduates will be able to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
6. Graduates will be able to function effectively as members of a team in developing computing technology and solving technical problems.

Requirements

A grade of C- or higher in a course is required to satisfy any degree requirement.

A grade of B- or higher in a course is required to use that course as a prerequisite for another.

Code	Title	Credits
Computer Science Foundations		**0-7**
Students who do not have a 4-year degree in Computer Science must complete these additional 7 credits of coursework.		
CSCI 5010	Object-Oriented Programming & Data Structures	
CSCI 5011	Object-Oriented Programming & Data Structures Lab	
CSCI 5020	Object-Oriented Software Design	
Required Courses		
CSCI 5030	Principles of Software Development	3
CSCI 5050	Computing and Society	3
CSCI 5100-5199, 5931	Theory Elective	3
CSCI 5300-5399, 5933	Software Engineering Elective	3
CSCI 5500-5599, 5935	Systems Elective	3
Breadth Requirements		**6**
Select one course from at least two of the following categories:		
CSCI 5200-5299, 5932	Language/Compilers	
CSCI 5600-5699, 5933	Large Scale Systems	
CSCI 5700-5799, 5937	Knowledge Systems	
CSCI 5800-5899, 5938	Advanced Applications	
General Electives		**12**
Select an additional twelve credits (options listed below)		
Breadth Electives	Additional courses from Breadth Electives may be chosen.	
Closely Related Disciplines	With approval, students may include up to 6 credits of elective graduate coursework in closely related disciplines (e.g., Mathematics, Statistics, Bioinformatics & Computational Biology, Electrical & Computer Engineering).	
Internship with Industry	Students may apply at most 3 credits of CSCI 5910.	
Thesis Option	A Master's Thesis is optional. Students completing a thesis take 6 credits of CSCI 5990.	
Total Credits		**33-40**

At most 3 credit hours of CSCI 5910 Internship with Industry (1-3 cr) will be counted towards the degree.

At most 3 credit hours of CSCI 5970 Research Topics (1-3 cr) will be counted towards the degree.

At most 3 credit hours of CSCI 5980 Graduate Independent Study in Computer Science (1-3 cr) will be counted towards the degree.

At most a total of 6 credit hours of CSCI 5970 Research Topics (1-3 cr), CSCI 5980 Graduate Independent Study in Computer Science (1-3 cr) and CSCI 5990 Thesis Research (0-6 cr) will be counted towards the degree.

Non-Course Requirements

All graduate degree candidates must complete an exit survey with the department during their final semester.

~~Continuation Standards~~

Students must maintain a cumulative grade point average (GPA) of 3.00 in all graduate/professional courses.

Roadmap

Roadmaps are recommended semester-by-semester plans of study for programs and assume full-time enrollment unless otherwise noted.

Courses and milestones designated as critical (marked with !) must be completed in the semester listed to ensure a timely graduation. Transfer credit may change the roadmap.

This roadmap should not be used in the place of regular academic advising appointments. All students are encouraged to meet with their advisor/mentor each semester. Requirements, course availability and sequencing are subject to change.

MS in Computer Science

Course	Title	Credits
Year One		
Fall		
CSCI 5030	Principles of Software Development	3
CSCI 5050	Computing and Society	3
Theory Elective	Theory courses numbered CSCI 5100-5199	3
	Credits	**9**
Spring		
Software Engineering Elective	Software Engineering courses numbered CSCI 5300-5399	3
Systems Elective	Systems courses numbered CSCI 5500-5599	3
Breadth or General Elective	See Program Notes	3
	Credits	**9**
Year Two		
Fall		
Breadth or General Elective	See Program Notes	9
	Credits	**9**
Spring		
Breadth or General Electives	See Program Notes	6
	Credits	**6**
	Total Credits	**33**

MS in Computer Science + Foundations

Students who do not have a 4-year degree in Computer Science must complete 7 additional credits of coursework.

Course	Title	Credits
Year One		
Fall		
CSCI 5010	Object-Oriented Programming & Data Structures	3
CSCI 5011	Object-Oriented Programming & Data Structures Lab	1
CSCI 5050	Computing and Society	3
	Credits	**7**
Spring		
CSCI 5020	Object-Oriented Software Design	3
Breadth or General Elective	See Program Notes	3
Theory Elective	Theory Courses Numbered 5100-5199	3
	Credits	**9**
Year Two		
Fall		
CSCI 5030	Principles of Software Development	3
Breadth or General Elective	See Program Notes	3
Systems Elective	Courses Numbered 5500-5599	3
	Credits	**9**
Spring		
Software Engineering Elective	Software Engineering courses numbered CSCI 5300-5399	3
Breadth or General Elective	See Program Notes	3
Breadth or General Elective	See Program Notes	3
	Credits	**9**
Year Three		
Fall		
General Elective		3
General Elective		3
	Credits	**6**
	Total Credits	**40**

Program Notes

Breadth Elective Requirement

The general requirements must include a course from at least two of the following categories:

- CSCI 5200-5299 (Language/Compilers courses)
- CSCI 5600-5699 (Large Scale Systems courses)
- CSCI 5700-5799 (Knowledge Systems)
- CSCI 5800-5899 or BCB 5200/5250 (Advanced Applications)

Thesis Option

A master's thesis is optional. Students completing a thesis should take six credits of Thesis Research (CSCI 5990) as part of the elective requirements.

Internship with Industry

Students may apply at most three credits of Internship with Industry (CSCI 5910) toward the degree requirements.

Closely Related Disciplines

With approval, students may include up to six credits of elective graduate coursework in closely related disciplines (e.g., mathematics and statistics, bioinformatics and computational biology, electrical and computer engineering).

Contact Us

For questions about admissions, applicants currently in the United States should contact graduate@slu.edu and applicants elsewhere should contact globalgrad@slu.edu.

For other questions about the program or curriculum, contact the computer science department at cs@slu.edu.