

# COMPUTER SCIENCE (MS)

## Master of Science in Computer Science (MS)

Unit: Speed School of Engineering (<http://engineering.louisville.edu>) (GS)

Department: Computer Science and Engineering (<https://engineering.louisville.edu/academics/departments/computer/>)  
Academic Plan Code(s): CS\_ \_MS, CS\_ \_MS\_O

## Program Information

*This program can be completed 100% online* (<https://louisville.edu/online/programs/masters/master-of-science-in-computer-science/>).

The MS degree program is intended for persons having an accredited baccalaureate degree in computer science or computer engineering, but is available to those with other backgrounds. Applicants with other backgrounds should plan on taking some undergraduate background coursework. Students interested in the MS degree program should consult the Director of Graduate Studies in the Department of Computer Science and Engineering.

## Degree Requirements

The program of study must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the program of study must be completed with a 3.00 GPA or better for all academic work attempted in graduate studies.

The requirements for the Master of Science degree are discussed in more detail in the Degree Requirements (<https://catalog.louisville.edu/graduate/general-policies-procedures-requirements/degree-requirements/>) section of this catalog.

## Admission Standards

The admission standards for the Master of Science program in Computer Science are as follows:

- All admission applications for the program shall include:
  - A completed graduate application (<http://louisville.edu/graduate/futurestudents/apply-materials/application/>) for the Graduate School,
  - An application fee,
  - At least two letters of recommendation,
  - Personal statement or resume,
  - Official transcript(s) for all previous post-secondary coursework. All transcripts not in English must be certified as authentic and translated verbatim into English.
- The minimum requirement for admission is the baccalaureate degree or its equivalent from an accredited institution.
- The successful applicant will typically have an undergraduate grade point average of 2.75 or above (on a 4.00 scale).
- International students whose primary language is not English must show English language proficiency by either TOEFL/IELTS/Duolingo score or demonstration of a degree awarded from an acceptable English language institution. The successful applicant will typically have a TOEFL score of 79 or higher or overall IELTS score of 6.5 or higher or a Duolingo score of 105 or higher.

## Program Requirements

Remedial work may be specified for those applicants who, in the opinion of the faculty, do not have a sufficient background.

The minimum curricular requirements for the master's program are:

Code	Title	Hours
<b>MS in Computer Science Coursework</b>		
Foundations Course (see list below) <sup>1</sup>		3
Software Courses (see list below) <sup>2</sup>		6
Analytic Courses (see list below) <sup>3</sup>		6
CSE Electives <sup>4</sup>		9
Select one of the following:		6
<i>Thesis Option</i>		
CSE 690	Master of Science Thesis in Computer Science <sup>5</sup>	
<i>Non-Thesis Option</i>		
CSE 696	CSE Project	
CSE Elective <sup>4</sup>		
<i>Course Option</i>		
CSE 6XX (Project Oriented Course)		
CSE Elective <sup>4</sup>		
<b>Minimum Total Hours</b>		<b>30</b>

The Master of Science degree must be completed with a 3.00 GPA or better for all graduate courses used to satisfy degree requirements. Additionally, the master of science degree must be completed with a 3.00 GPA or better for all academic work attempted in graduate studies.

<sup>1</sup> One Foundations Course from the list below is required

<sup>2</sup> Two Software Courses from the list below are required

<sup>3</sup> Two Analytic Courses from the list below are required

<sup>4</sup> Electives must be chosen so that at least one-half of the credits counted toward the degree, exclusive of thesis, are 600-level; at least fifteen (15) credit hours of coursework must be in CSE.

<sup>5</sup> For the thesis option, a student is required to select both an approved MS thesis topic and the director and members of the thesis committee during the first term of Graduate Studies. The thesis director must give approval for enrollment in CSE 690 Master of Science Thesis in Computer Science.

## Approved Courses

### Foundation Courses

Code	Title	Hours
CSE 504	Automata Theory	3
CSE 611	Computer Architecture	3
CSE 619	Design and Analysis of Computer Algorithms	3

### Software Courses

Code	Title	Hours
CSE 516	Fundamentals of Computer Communications and Networks	3
CSE 535	Database Systems	3
CSE 545	Artificial Intelligence	3
CSE 550	Software Engineering	3

CSE 625	Parallel Programming	3
CSE 629	Distributed System Design	3
CSE 630	Advanced Databases	3
CSE 640	Internet Application Design and Development	3

### **Analytic Courses**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
CSE 522	Performance Evaluation of Computer Systems	3
CSE 563/IE 664	Experimental Design in Engineering	3
CSE 620	Combinatorial Optimization and Modern Heuristics	3
CSE 622	Simulation and Modeling of Discrete Systems	3
CSE 627	Digital Image Processing	3
CSE 632	Data Mining	3
CSE 635	Data Mining with Linear Models	3