

# Cybersecurity MS, Computer Science Emphasis Area

## Admission Requirements

Applicants must have at least a bachelor's degree, preferably in cybersecurity, computer science, information systems, or a related area. Applicants with bachelor's degrees outside of specified areas must demonstrate significant proficiency by showing competence (proving related academic or professional experience or taking a test) in the following areas. Courses in parenthesis are UMSL courses that can be used to fulfill the requirement.

1. Programming skills in C/C++ and Java with at least three college semesters or comparable experience (~~CMP SCI 1250; CMP SCI 2250~~ and CMP SCI 2261, or INFSYS 3806 and INFSYS 3816)
2. Proficiency with computer organization, architecture, or assembly level programming (CMP SCI 2700)
- ~~3. Unix/Linux/OSX and with command-line scripting with tools (CMP SCI 2750)~~

Students must also have satisfactorily completed mathematics courses equivalent to the following UMSL courses:

1. Survey Calculus or Calculus I (MATH 1100 or MATH 1800)
2. An elementary course in probability or statistics (MATH 1320)
3. A course in discrete mathematics (MATH 3000)

A student missing some of the above requirements may be admitted on restricted status if there is strong supportive evidence in other areas. The student will have to take the missing courses, or otherwise demonstrate proficiency. Special regulations of the Graduate School that apply to students on restricted status are described in the UMSL Bulletin.

### *Entrance examinations*

- The Graduate Record Examination (GRE) General Test is required only to apply for an assistantship (see <http://www.gre.org/ttindex.html>).
- International students are required to document English proficiency by providing scores from an internationally accepted standardized examination before a decision is made on admission.

## Coursework

Candidates for the M.S. in Cybersecurity with Computer Science emphasis must complete 30 credit-hours of graduate coursework, subject to the Graduate School regulations. Of these, at least 18 hours must be numbered 5000 or above. All courses numbered below 5000 must be completed with grades of at least B-. Outside computer science and information systems, up to 6 hours of related course work is allowed upon permission of the Graduate Director.

CMP SCI 4730	Computer Networks and Communications	3
CMP SCI 4760	Operating Systems	3
or CMP SCI 5710	Modern Computing	
CMP SCI 5702	Cyber Threats and Defense	3
CMP SCI 5732	Cryptography for Computer Security	3
CMP SCI 5782	Advanced Information Security	3
CMP SCI 5888	Cybersecurity Capstone <sup>1</sup>	3
<b>Electives (Choose four courses. At least two must be from Computer Science)</b>		<b>12</b>
CMP SCI 4700	Computer Forensics	
CMP SCI 5750	Cloud Computing	
CMP SCI 5792	Mobile Computing, Networking, and Security	
CMP SCI 5794	Internet of Things	
INFSYS 6858	Advanced Cybersecurity Concepts	
INFSYS 6868	Software Assurance	
INFSYS 6878	Management of Information Security	
Other electives upon approval of Computer Science department chair		
<b>Total Hours</b>		<b>30</b>

<sup>1</sup> A student is allowed to work on three credit-hours of Master's Thesis (CMP SCI 6900) in place of Cybersecurity Capstone (CMP SCI 5888)