

# 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. Familiarity with 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.

<b>CMP SCI 4730</b>	Computer Networks and Communications	3
<b>CMP SCI 4760</b>	Operating Systems	3
<del><b>INFSYS 6828</b></del>	<del>Principles of Information Security</del>	<del>3</del>
<b>CMP SCI 5702</b>	<b>Cyber Threats and Defense</b>	3
<b>CMP SCI 5732</b>	Cryptography for Computer Security	3
<b>CMP SCI 5782</b>	Advanced Information Security	3
<b>CMP SCI 5888</b>	Cybersecurity Capstone <sup>1</sup>	3
<b>Electives (Choose four courses. At least two must be from Computer Science)</b>		12
<b>CMP SCI 4700</b>	Computer Forensics	
<b>CMP SCI 5750</b>	Cloud Computing	
<b>CMP SCI 5792</b>	<b>Mobile Computing, Networking and Security</b>	
<b>CMP SCI 5794</b>	Security of IoT Systems	
<b>INFSYS 6858</b>	Advanced Cybersecurity Concepts	
<b>INFSYS 6868</b>	Software Assurance	
<b>INFSYS 6878</b>	Management of Information Security	

---

## Other electives upon approval of Computer Science department chair

---

**Total Hours**

**30**

<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)

Sign-offs from other departments affected by this proposal

Department	Contact Person	Phone #	Objections
S005150	Dinesh Mirchandani		No

Rationale	Adding Cmp Sci 5702 as the new intro to cybersecurity CS course in place of previous similar course form InfSys. Also adding new elective
-----------	---