

# Program Change Request

Date Submitted: 10/06/25 7:21 pm

## Viewing: **CYBER-MS2 : Cybersecurity MS, Computer Science Emphasis Area**

Last approved: 05/21/25 12:29 pm

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Changes proposed by: Cezary Janikow (janikowc)

Catalog Pages Using  
 this Program  
[Cybersecurity MS, Computer Science Emphasis](#)

Initiator: 6352	Name: Cezary Janikow	Phone:
	Email: janikowc@umsl.edu	
Program Code	CYBER-MS2	

### In Workflow

1. S005150 Chair
2. Curricular Alignment Check
3. Academic Affairs Program Preapproval
4. SBUSN Graduate Assoc Dean
5. SBUSN Dean
6. Graduate C&I Committee
7. Senate C&I
8. Senate C&I Editing
9. FacultySenate
10. Academic Affairs
11. Registrar Programs

### Approval Path

1. 10/20/25 10:23 am  
Dinesh Mirchandani (mirchandaniid):  
Approved for S005150 Chair
2. 11/04/25 3:43 pm  
Keeta Holmes (holmeskm):  
Approved for Curricular Alignment Check
3. 11/04/25 3:44 pm  
Betsy Sampson (sampsone):  
Approved for Academic Affairs

Program

Preapproval

4. 11/04/25 9:54 pm

Ekin Pellegrini

(pellegrinie):

Approved for SBUSN

Graduate Assoc

Dean

5. 12/12/25 10:12 am

Shu Schiller (ssg8f):

Approved for SBUSN

Dean

6. 01/30/26 5:32 pm

Amber Reinhart

(reinhartam):

Approved for

Graduate C&I

Committee

7. 02/10/26 8:49 am

Ho Kim (kimho):

Approved for

Senate C&I

8. 02/10/26 9:49 am

Betsy Sampson

(sampsone):

Approved for

Senate C&I Editing

## History

1. Jun 19, 2019 by

Shaji Khan

(shajikhan)

2. Jun 17, 2020 by

Cezary Janikow

(janikowc)

3. May 21, 2024 by

Cezary Janikow

(janikowc)

4. May 21, 2025 by  
Betsy Sampson  
(sampsone)

*To be completed by Academic Affairs*

Title	Cybersecurity MS, Computer Science Emphasis Area
Program Type	Degree Program
College/School	Ed G. Smith College of Business
Department	Information Systems
Academic Level	Graduate
CIP Code	111003 - Computer and Information Systems Security/Auditing/Information Assurance.
Effective CAT	2025-26

Program Requirements and Description as it will appear in the bulletin.

## 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.

Programming skills in C/C++ and Java with at least three college semesters or comparable experience ([CMP SCI 2261](#), or [INFSYS 3806](#) and [INFSYS 3816](#))

Proficiency with computer organization, architecture, or assembly level programming ([CMP SCI 2700](#))

Students must also have satisfactorily completed mathematics courses equivalent to the following UMSL courses: Survey Calculus or Calculus I ([MATH 1100](#) or [MATH 1800](#))

An elementary course in probability or statistics ([MATH 1320](#))

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.

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

If other departments are affected by this proposal, please secure "sign-offs" and indicate for each department the following:

Department	Contact Person	Phone #	Objections
Information Systems	Dinesh Mirchandani	No	No

## Program Learning

## Outcomes

**Learning Outcomes**

Understand and Describe the Confidentiality, Integrity, and Availability security objectives and key security principles that enable the development of security mechanisms

Demonstrate an understanding of physical, data link, network, transport, and application layers of data networking and identify potential information security pitfalls at each layer

Describe important secure software development principles and common web application security vulnerabilities

Describe common applications of cryptographic, network, application, and systems security defense mechanisms to improve information security

Understand the role of systematic information security risk management in fostering information security within organizations and the role of management and control frameworks such as NIST Special Publications and ISO 27000 series standards in doing so.

## Attachments

This program will be developed with the intention of delivery in the following delivery modes (choose all that apply)

**Face to face**

[UMSL Online \(50-74% of program coursework offered online\)](#)

Missouri Online (75% or more of program coursework offered online and participates in Missouri Online)

Justification for request:

We reviewed our courses and programs with IS&T and concluded that InfSys 6858 overlaps with Cmp Sci 5782. Both sides agreed to remove the other course from electives.

Program Reviewer

Comments