

## BS+MS in Cybersecurity Recommended Curriculum Catalog Year: 2021-22

### FRESHMAN

Fall Semester		Spring Semester	
Course Number and Title	Credits	Course Number and Title	Credits
WRIT131: Writing I* (Goal 1)	3	WRIT271: Technical Writing* (Goal 1)	3
COMM103: Public Speaking* (Goal 1)	3	MATH215: Discrete Math ( <i>Pre-Major</i> )	4
MATH115: College Algebra* (Goal 4, <i>Pre-Major</i> )	4	ICS140: Computational Thinking and Programming ( <i>Pre-Major</i> )	4
PSYC100: General Psychology* (Goal 5)	3	PHYS110: Intro to Physics* (Goal 3)	4
<b>Total Credits</b>	<b>13</b>	<b>Total Credits</b>	<b>15</b>

*Note: All freshmen must take METR101: Your Academic Journey (3 cr) course*

### SOPHOMORE

Fall Semester		Spring Semester	
Course Number and Title	Credits	Course Number and Title	Credits
ICS265: C Programming ( <i>Pre-Major</i> )	4	NSCI216: Eng. Science* (Goals 3, 10) <i>or</i> NSCI204: Env. Science* (Goals 3, 10)	4
SSCI100: Int. So. Science* (Goals 5, 7) <i>or</i> SOC301: Cont. Soc* (Goals 5, 7, UD LS)	4	STAT201: Statistics I ( <i>Pre-Major</i> )	4
ETHS231: Global Native & Indigenous Studies* (Goals 6, 8, Racial Issue)	4	ICS251: IT Work Skills ( <i>Pre-Major</i> )	2
CFS262: Comp. OS Fund I ( <i>Pre-Major</i> )	4	CFS264: Comp. OS Fund II ( <i>Pre-Major</i> )	4
<b>Total Credits</b>	<b>16</b>	<b>Total Credits</b>	<b>14</b>

### JUNIOR

Fall Semester		Spring Semester	
Course Number and Title	Credits	Course Number and Title	Credits
PHIL327: Ethics in Information Age* (Goals 6,9, UD LS)	4	PSYC317: H. Factors* (Goal 5, UD LS) <i>or</i> PSYC303: Artific. Intel* (Goal 5, UD LS)	4
CYBR362: Net. Prot. Analysis ( <b>Major</b> )	4	CYBR332: Computer Security ( <b>Major</b> )	4
ICS311: Database Mgmt. Sys. ( <b>Major</b> )	4	ICS232: Comp. Org. Arch ( <b>Major</b> )	4
General <i>or</i> Technical Elective**	4	General <i>or</i> Technical Elective**	4
<b>Total Credits</b>	<b>16</b>	<b>Total Credits</b>	<b>16</b>

#### Summer Semester

Course Number and Title	Credits
General <i>or</i> Technical Elective**	4

### SENIOR/GRADUATE

Fall Semester		Spring Semester	
Course Number and Title	Credits	Course Number and Title	Credits
CYBR641: Cyber Ops Fund ( <b>Major,GR</b> )	4	CYBR412: Vuln. Ass. Pen. Test ( <b>Major</b> )	4
CYBR621: Secure Sys Pro ( <b>GR</b> )	4	CYBR635: Crypto ( <b>GR</b> )	2
CYBR432: Crypto. Cyber Pract. ( <b>Major</b> )	4	CYBR681: Mal Reverse Eng ( <b>Major Elective for UG, Required for Grad</b> )	4
		CYBR671: Digital Forensic I ( <b>Major,GR</b> )	2
CYBR350I: Cyber Residency ( <b>Major</b> )	2	CYBR350I: Cyber Residency ( <b>Major</b> )	2
CYBR698: Capstone ( <b>GR</b> )	1	CYBR698: Capstone ( <b>GR</b> )	1
<b>Total Credits</b>	<b>15</b>	<b>Total Credits</b>	<b>15</b>



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### GRADUATE

Summer Semester		Fall Semester	
Course Number and Title	Credits	Course Number and Title	Credits
CYBR672: Digital Forensic II (Major,GR)	2	CYBR665: Wireless Security (GR)	2
CYBR675: Virtualization/Cloud (GR)	2	CYBR690: Special Topics (GR)	2
CYBR645: Cyber Threat Int (GR)	2	CYBR698: Capstone	1
CYBR611: Vul. Assess/Pen test (GR)	3	MIS675: Risk Analysis (GR)	2
		MIS694: Cyber Ethics (GR)	2
<b>Total Credits</b>	<b>9</b>	<b>Total Credits</b>	<b>9</b>

**Note:** Students may complete general electives or any other courses (if offered) during summer semesters.

\* Courses satisfying GELS (Goals 1-10, Upper Division (UD) Liberal Studies (LS)) and Racial Issues requirements (RI).

\*\* Although any courses may be taken from general electives to complete the remaining credits of the 120 credits requirements, it is highly recommended to take other technical cybersecurity courses instead.

### Combined BS/MS in Cybersecurity Operations Degree Requirements (142 Credits)

- 40 out of 120 credits must be Upper Division (UD) Credits (300-500 level)
- 30 out of 120 credits must be completed at Metro State University
- Complete 48 credits of General Education and Liberal Studies (GELS) as follows:
  - Minnesota Transfer Curriculum (Goal 1-10): 40 credits.
  - Liberal studies (LS): 8 Upper Division credits.
  - Racial Issues Requirements: 3 Credits (can be fulfilled by overlapping with a GELS course)
- BS Program Requirements (46 Credits)
  - Pre-Major Foundation Courses (30 Credits):
    - MATH115, MATH215, STAT201, ICS140, ICS265, ICS251, CFS262, CFS264
  - Major Core Courses (16 Credits):
    - ICS232, ICS311, CYBR332, CYBR362
- BS/MS Program Requirements (26 Credits)
  - Major Core Courses (14 Credits)
    - CYBR412, CYBR432, CYBR641, CYBR671
  - Major Elective for UG but required for Graduate program (4 Credits):
    - CYBR681
  - Cyber Residency (4 Credits):
    - CYBR350I
  - Additional credits of graduate coursework, which will be double-counted for both the undergraduate and graduate requirements (4 Credits)
    - CYBR621
- Complete the remaining credits from General or Technical Electives

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### 7. MS Program Requirements (22 Credits)

- Complete the remaining graduate courses (19 Credits):
  - CYBR 611, CYBR 635, 645, 665, 672, 675, 690, MIS 675, 694
- Capstone Requirement (3 Credit):
  - CYBR698

**Goal 1:** Communication Two writing courses—introductory and intermediate writing (6 or more credits). One oral and visual communication course (3 or more credits). (9 credits)

- COMM103 (3 cr), WRIT131 (3 cr), WRIT271 (3 cr)

**Goal 3:** Natural Sciences (7 or more credits, including a laboratory). (8 credits)

- PHYS110 (4 cr), NSCI216 (4 cr) **OR** NSCI204 (4 cr) (Also satisfies Goal 10)

**Goal 4:** Mathematical/Logical Reasoning (3 or more credits) (12 credits; also counted towards pre-major)

- MATH115 (4 cr), MATH215 (4 cr), STAT201 (4 cr)

**Goal 5:** History and the Social and Behavioral Sciences (6 or more credits). At least two courses from two different disciplines. (11 credits)

- PSYC100 (3 cr), PSYC317 (4 cr) **OR** PSYC303 (4 cr, UD LS), SSCI100 (4 cr; also satisfies Goal 7) **OR** SOC301 (4 cr; UD LS; also satisfies Goal 7)

**Goal 6:** Humanities and the Fine Arts (6 or more credits) (8 credits)

- PHIL327 (4 cr; UD LS; also satisfies Goal 9), ETHS231 (4 cr; also satisfies Goal 8, Racial Issue)

**Goal 7:** Human Diversity (3 or more credits) (Overlap with Goal 5)

- SSCI100 (4 cr; also satisfies Goal 5) **OR** SOC301 (4 cr; UD LS; also satisfies Goal 5)

**Goal 8:** Global Perspective (3 or more credits) (Overlap with Goal 6)

- ETHS231 (4 cr; also satisfies goal 6, Racial Issue)

**Goal 9:** Ethical and Civic Responsibility (3 or more credits) (Overlap with Goal 6)

- PHIL327 (4 cr; UD LS; also satisfies goal 6)

**Goal 10:** People and the Environment (3 or more credits) (Overlap with Goal 3)

- NSCI216 (4 cr) **OR** NSCI204 (4 cr; also satisfies Goal 3)

### **BS Degree Requirements Check**

- Total Completed GELS: 48 credits (including 12 credits of pre-major foundation); Upper Division Liberal Studies: At least 8 credits; Racial Issues Requirement: 4 credits
- Total Upper Division Credits: At least 40 credits (not including remaining General/Technical Electives)