

## Program-Level Assessment Plan

Program: Cybersecurity	Degree Level (e.g., UG or GR certificate, UG major, master’s program, doctoral program): M.S.
Department: N/A	College/School: School for Professional Studies
Date (Month/Year): June 2021	Primary Assessment Contact: Maria Weber

#	Student Learning Outcomes	Curriculum Mapping	Assessment Methods	
			Artifacts of Student Learning (What)	Evaluation Process (How)
	<p>What do the program faculty expect all students to know or be able to do as a result of completing this program?</p> <p>Note: These should be measurable and manageable in number (typically 4-6 are sufficient).</p>	<p>In which courses will faculty intentionally work to foster some level of student development toward achievement of the outcome? Please clarify the level at which student development is expected in each course (e.g., introduced, developed, reinforced, achieved, etc.).</p>	<p>1. What artifacts of student learning will be used to determine if students have achieved this outcome?</p> <p>2. In which courses will these artifacts be collected?</p>	<p>1. What process will be used to evaluate the artifacts, and by whom?</p> <p>2. What tools(s) (e.g., a rubric) will be used in the process?</p> <p>Note: Please include any rubrics as part of the submitted plan documents.</p>
1	<p>Graduates will be able to apply program-specific knowledge to address practical problems using an ethical, evidence-based framework.</p>	<p>CYBR 5000 – I</p> <p>CYBR 5210 – R</p> <p>CYBR 5230 – R</p> <p>CYBR 5961/5962/5963 – E</p>	<p>CYBR 5000 – Final Project</p> <p>CYBR 5210 – Final Project</p> <p>CYBR 5230 – Final Project</p> <p>CYBR 5961– Master Research Prospectus</p> <p>CYBR 5962 – Master Research Proposal</p> <p>CYBR 5963 – Master Research Project</p>	<p>1. An assessment survey will be completed by each instructor at the end of the course in which this program learning outcome exists. This survey will inquire about: A) Specific artifact(s) used to demonstrate achievement, B) Strengths/weakness in student performance towards this outcome, C) Number of students who achieved/partially achieved/not achieved the outcome, D) Suggestions on potential changes to the curriculum/pedagogies/artifacts/assessment methods.</p> <p>2. Exit survey completed by students at end of degree.</p> <p>3. Masters applied research projects completed in CYBR 5963 will be evaluated by the Program Director at the end of the research project using a three-point rubric. Comments and recommendations will be recorded.</p>

<p><b>2</b></p>	<p>Graduates will be able to utilize argumentation skills appropriate for a given problem or context.</p>	<p>CYBR 5000 – I  CYBR 5220 – R  CYBR 5240 – R  CYBR 5961/5962/5963 – E</p>	<p>CYBR 5000 – Final Project  CYBR 5220 – Final Project  CYBR 5240 – Final Project  CYBR 5961– Master Research Prospectus  CYBR 5962 – Master Research Proposal  CYBR 5963 – Master Research Project</p>	<p>1. An assessment survey will be completed by each instructor at the end of the course in which this program learning outcome exists. This survey will inquire about: A) specific artifact(s) used to demonstrate achievement, B) Strengths/weakness in student performance towards this outcome, C) Number of students who achieved/partially achieved/not achieved the outcome, D) Suggestions on potential changes to the curriculum/pedagogies/artifacts/assessment methods.</p> <p>2. Exit survey completed by students at end of degree.</p> <p>3. Masters applied research projects completed in CYBR 5963 will be evaluated by the Program Director at the end of the research project using a three-point rubric. Comments and recommendations will be recorded.</p>
<p><b>3</b></p>	<p>Graduates will be able to apply Cybersecurity-relevant network and data management systems principles to protect various assets.</p>	<p>CYBR 5010 – I  CYBR 5020 – R  CYBR 5030 – R  CYBR 5210 – R  CYBR 5220 – R  CYBR 5961/5962/5963 – E</p>	<p>CYBR 5010 – Final Project  CYBR 5020 – Final Project  CYBR 5030 – Final Project  CYBR 5210 – Final Project  CYBR 5220 – Final Project  CYBR 5961– Master Research Prospectus  CYBR 5962 – Master Research Proposal  CYBR 5963 – Master Research Project</p>	<p>1. An assessment survey will be completed by each instructor at the end of the course in which this program learning outcome exists. This survey will inquire about: A) Specific artifact(s) used to demonstrate achievement, B) Strengths/weakness in student performance towards this outcome, C) Number of students who achieved/partially achieved/not achieved the outcome, D) Suggestions on potential changes to the curriculum/pedagogies/artifacts/assessment methods.</p> <p>2. Exit survey completed by students at end of degree.</p> <p>3. Masters applied research projects completed in CYBR 5963 will be evaluated</p>

				by the Program Director at the end of the research project using a three-point rubric. Comments and recommendations will be recorded.
4	Graduates will be able to apply information security principles to analyze, detect and mitigate vulnerabilities and prevent intrusions.	CYBR 5010 – R CYBR 5020 – R CYBR 5030 – R CYBR 5230 – R CYBR 5240 – R CYBR 5961/5962/5963 – E	CYBR 5010 – Final Project CYBR 5020 – Final Project CYBR 5030 – Final Project CYBR 5230 – Final Project CYBR 5240 – Final Project CYBR 5961– Master Research Prospectus CYBR 5962 – Master Research Proposal CYBR 5963 – Master Research Project	<ol style="list-style-type: none"> <li>1. An assessment survey will be completed by each instructor at the end of the course in which this program learning outcome exists. This survey will inquire about: A) Specific artifact(s) used to demonstrate achievement, B) Strengths/weakness in student performance towards this outcome, C) Number of students who achieved/partially achieved/not achieved the outcome, D) Suggestions on potential changes to the curriculum/pedagogies/artifacts/assessment methods.</li> <li>2. Exit survey completed by students at end of degree.</li> <li>3. Masters applied research projects completed in CYBR 5963 will be evaluated by the Program Director at the end of the research project using a three-point rubric. Comments and recommendations will be recorded.</li> </ol>

I – Introduced, R-Reinforced, E-Evaluated

## Program Curricular Map

The curriculum map indicates where SLOs are introduced (I), reinforced (R), and evaluated. The map demonstrates how each course contributes to students' meeting the SLOs and help ensures student learning is designed to scaffold from initial introduction to the knowledge/skills/attitudes (KSA), to the opportunity to apply the KSAs to different situations, to evaluation of student's degree of achievement of each SLO.

### Master of Science Cybersecurity Program Level Student Learning Objectives

	1. Assess evidence to draw reasoned, ethical conclusions.	2. Utilize effective discipline-specific argumentation skills appropriate for a given problem or context.	3. Graduates will be able to apply cybersecurity-relevant network and data management systems principles to protect various assets.	4. Graduates will be able to apply information security principles to analyze, detect and mitigate vulnerabilities and prevent intrusions.
<b>SPS Graduate Core (6 Credits)</b>				
ORLD 5050 Ethical, Evidence-Based Decision Making	I			
AA 5221 Applied Analytics and Methods I		I		
<b>Cybersecurity Core (24 Credits)</b>				
CYBR 5000 Cybersecurity Principles	I	I		
CYBR 5010 Networking Concepts			I	I
CYBR 5020 Data Administration			R	R
CYBR 5030 Cyber Threats and Defense			R	R
CYBR 5210 Digital Investigations	R		R	
CYBR 5220 Incident Response and Mitigation		R	R	
CYBR 5230 Intrusion Detection and Analysis	R			R
CYBR 5240 Cloud Security		R		R
<b>Master Research Project (3 credits)</b>				
CYBR 5961-5963 Cybersecurity Master's Research Project (MRP)	E	E	E	E

## Use of Assessment Data

1. How and when will analyzed data be used by program faculty to make changes in pedagogy, curriculum design, and/or assessment practices? Every other year, typically in the spring. The program Director in cooperation with the fulltime and adjunct faculty will analyze assessment data and make changes to pedagogy and/or curriculum

2. How and when will the program faculty evaluate the impact of assessment-informed changes made in previous years?

In the fall, Program Directors will follow-up on action items from the previous year to determine the impact and possible refinements or enhancements moving forward.

**Additional Questions**

1. On what schedule/cycle will program faculty assess each of the program’s student learning outcomes? (Please note: It is not recommended to try to assess every outcome every year.)

	<b>SLO 1</b>	<b>SLO 2</b>	<b>SLO 3</b>	<b>SLO 4</b>
<b>AY 2021 - 2022</b>	CYBR 5000, CYBR 5210, CYBR 5230, CYBR 5961, CYBR 5262, CYBR 5963	CYBR 5000, CYBR 5220, CYBR 5240, CYBR 5961, CYBR 5262, CYBR 5963		
<b>AY 2022 - 2023</b>			CYBR 5010, CYBR 5020, CYBR 5030, CYBR 5210, CYBR 5220, CYBR 5961, CYBR 5262, CYBR 5963	CYBR 5010, CYBR 5020, CYBR 5030, CYBR 5230, CYBR 5240, CYBR 5961, CYBR 5262, CYBR 5963
<b>AY 2023 - 2024</b>	CYBR 5000, CYBR 5210, CYBR 5230, CYBR 5961, CYBR 5962, CYBR 5963	CYBR 5000, CYBR 5220, CYBR 5240, CYBR 5961, CYBR 5962, CYBR 5963		
<b>AY 2024 - 2025</b>			CYBR 5010, CYBR 5020, CYBR 5030, CYBR 5210, CYBR 5220, CYBR 5961-5963	CYBR 5010, CYBR 5020, CYBR 5030, CYBR 5230, CYBR 5240, CYBR 5961-5963
<b>AY 2025 - 2026</b>	CYBR 5000, CYBR 5220, CYBR 5240, CYBR 5961, CYBR 5962, CYBR 5963	CYBR 5000, CYBR 5220, CYBR 5240, CYBR 5961, CYBR 5962, CYBR 5963		

As shown above, two learning outcomes will be assessed each year, based on the current evaluation plan and, if needed, any changes necessitated in re-prioritizing due to changes to the curriculum or any contingency that may have arisen during the previous evaluation cycle year.

2. Describe how, and the extent to which, program faculty contributed to the development of this plan.

The Program Director, in cooperation with the full-time and adjunct faculty, are involved in the development of the courses and their application to each program learning outcome within the plan. These faculties are highly invested in ensuring that course projects and other associated artifacts are created in ways that student performance toward the learning outcome can be distinguished and evidence towards achievement reported.

**IMPORTANT: Please remember to submit any rubrics or other assessment tools along with this plan.**