

## Program Assessment: *Annual Report*

**Program(s): Graduate Certificate in Biosecurity & Disaster Preparedness**

**Department: Epidemiology & Biostatistics**

**College/School: College for Public Health & Social Justice**

**Date: 10/9/2022**

**Primary Assessment Contact: Carole Baskin**

### 1. Which program student learning outcomes were assessed in this annual assessment cycle?

Our assessment plan includes both direct and indirect measures.

The indirect measures are to use an exit interview to determine the following:

- 1) Students' perceived confidence in performing the program competencies
- 2) Students' perceived confidence that they can use and/or interpret the terms and nomenclature of the field

The goal is to have  $\geq 75\%$  of the graduating Certificate students indicate a positive response on each of the "perceived achievement of competencies" questions (i.e., "Very confident" or "Somewhat confident").

The direct measure is to evaluate student performance on the culminating assignments in the BSDP 5100 and BSDP 5206 courses during the annual Institute Strategic Planning Retreat/Meeting (see rubric below). The goal is to have  $\geq 75\%$  of the graduating Certificate students achieve an "excellent" or "good" ranking on each of the assessed learning outcome measures from these culminating projects. Two learning outcome measures from one competency (Apply the scientific characteristics, such as transmission routes and control measures, of major biological hazards to develop interventions that minimize human and animal disease) were assessed during this cycle: 1: Develop appropriate interventions that minimize human and animal disease; 2: Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study

### 2. What data/artifacts of student learning were collected for each assessed outcome? Were Madrid student artifacts included?

Indirect measures: An exit survey is conducted with each graduating student to assess perceived ability to perform the competencies. Students' perceived confidence in performing the program competencies and perceived confidence that they can use and/or interpret the terms and nomenclature of the field are both measured on a 5-point Likert scale consisting of "Very confident", "Somewhat confident", "Neither confident nor unconfident", "Somewhat unconfident", or "Very unconfident". The goal is to have  $\geq 75\%$  of the graduating students indicate a positive response on each of the two perceived confidence questions (i.e., "very confident" or "somewhat confident").

Direct measures: Student performance on the culminating assignments in two required/core courses (BSDP 5100's Community threat assessment white paper and BSDP 5206's Community Risk Analysis) was used for program assessment. Assignments from all of the graduating students were used for program assessment. Student assignments were de-identified before review to maintain confidentiality. Data was collected from Spring and Summer 2022 and assessed at the beginning of the fall 2022 semester. The goal is to have  $\geq 75\%$  of the assessed students achieve an "excellent" or "good" ranking on each of the assessed learning outcome measures from these culminating projects.

No Madrid courses/program were involved.

### 3. How did you analyze the assessment data? What was the process? Who was involved?

**NOTE: If you used rubrics as part of your analysis, please include them in an appendix.**

**Indirect measures:** The quantitative and qualitative data from the exit interview were formatted in report form and shared with the BSDP faculty (see attached). Faculty examined the data to determine the extent to which the goals were met (i.e., whether  $\geq 75\%$  of the graduating students indicated a positive response on each of the “perceived achievement of competencies” questions).

**Direct measures:** The de-identified student assignments were provided in full to all Biosecurity & Disaster Preparedness faculty (both full-time and adjunct). Faculty were provided a copy of the student assignments and the grading rubric (see attached), and the ranking system for determining student achievement of the learning outcome measures was explained. Faculty read through each student assignment and then ranked the extent to which each student had achieved the learning outcome measure using the ranking system identified on the rubric: excellent, good, fair, or poor (see definitions of each on the rubric). This was done for each learning outcome measure assessed using each data/artifact from each of the assessed students. Each faculty voted independently on each student and each outcome measure.

4. What did you learn from the data? Summarize the major findings of your analysis for each assessed outcome.

*NOTE: If necessary, include any tables, charts, or graphs in an appendix.*

Program Assessment took place at the beginning of the Fall 2022 semester. Full-time faculty and several adjunct faculty members participated in the Program Assessment (N=6)

**Indirect measures of performance:**

All of the graduates reported that they were very confident that they could perform four of the four competencies (See attached Table).

Qualitative comments from students via the exit interview indicate that students are very happy with the Biosecurity and Disaster Preparedness Certificate program, especially in terms of the curriculum and the faculty instructors. Positive comments included the following:

“I love this curriculum! I definitely think a little bit of work is needed to prevent overlap of course content, however, these were always the interesting classes.”  
that I looked forward to studying.

“Dr. Simmons was amazing, really all my faculty were. I wish it was in person!”

**These findings exceed the expectations for the indirect measures.**

**Direct measures of program performance:**

Three BSDP 5100’s Community threat assessment and three BSDP 5206’s Community Risk Analyses were available for this review. Each project had a unique author and we had six reviewers.

Competency 3 learning outcome measures 3a (Develop appropriate interventions that minimize human and animal disease): 75% of ratings were “excellent” or “good”, and 22.22% were “fair”, and 2.8% were “poor”.

Competency 3 learning outcome measures 3b (Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study): 88.5% of ratings were “excellent” or “good” and 13.9% were “fair”, and 5.5% were “poor”.

Summary: Over 75% of assessed students scored as “excellent” or “good” on all data artifacts.

**These findings exceed expectations for the direct measures.**

5. How did your analysis inform meaningful change? How did you *use the analyzed data to make or implement recommendations for change* in pedagogy, curriculum design, or your assessment plan?

Findings from this year's program assessment indicate that students are achieving all of the competencies and learning outcome measures for the Certificate program in Biosecurity and Disaster Preparedness, at least for the learning outcomes that were measured this year. One faculty member commented that the competency and learning outcomes evaluated this year were more difficult to assess than those in past years. No additional changes were deemed necessary for the BSDP curriculum or the assessment plan.

6. Did you follow up ("close the loop") on past assessment work? If so, what did you learn?  
*(For example, has that curriculum change you made two years ago manifested in improved student learning today, as evidenced in your recent assessment data and analysis?)*

Past assessment work has yielded similarly successful results. As we move past the COVID Pandemic, we are finding that there is interest in other nonendemic or emergent pathogens and the impact of climate change. There is also more interest in biosecurity and public health policy. The review for the Higher Learning Commission concurred with the need to develop this program.

***IMPORTANT: Please submit any revised/updated assessment plans to the University Assessment Coordinator along with this report.***

**Rubric for the Learning Outcome Measures Assessed in 2021 for the Biosecurity & Disaster Preparedness Certificate Program**

<b>Class &amp; assignment</b>	<b>Competency</b>	<b>Learning outcomes (LO) linked to program competencies</b>	<b>Extent to which students demonstrate achievement of LO (Excellent, good, fair, or poor)</b>
BSDP 5100 Public Health & Disasters  Community threat assessment white paper	3: Apply the scientific characteristics, such as transmission routes and control measures, of major biological hazards to develop interventions that minimize human and animal disease	3a: Develop appropriate interventions that minimize human and animal disease	
		3b: Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study	
BSDP 5206 Disaster Management & Risk Analysis  Community Risk Analysis	3: Apply the scientific characteristics, such as transmission routes and control measures, of major biological hazards to develop interventions that minimize human and animal disease	3a: Develop appropriate interventions that minimize human and animal disease	
		3b: Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study	

Demonstrates achievement ranking system: Excellent (Consistent and accurate), good (almost always and usually accurate), fair (not consistent and/or multiple mistakes), or poor (very inconsistent/missing and/or many mistakes)

**Exit Interview Data: Spring 2022 through Summer 2022**

**Certificate graduates' perceived confidence of performing the competencies [N=1]**

<b>Competency</b>	<b>Very Confident %</b>	<b>Somewhat Confident %</b>	<b>Neither Confident Nor Unconfident %</b>
Use an evidence-based approach to develop human, animal, and environmental hazard control interventions	100%		
Apply the scientific characteristics, such as transmission routes and control measures, of major biological hazards to develop interventions that minimize human and animal disease	100%		
Synthesize disaster planning data into risk communication messages regarding biosecurity hazards and risks to responders, the public, the media, and policy makers	100%		
Apply/use biosecurity and emergency management nomenclature and terminology (such as “mitigation” and “risk assessment”) accurately	100%		

**Qualitative Comments from Certificate Graduates Collected Via the Exit Interview**

- I love this curriculum! I definitely think a little bit of work is needed to prevent overlap of course content, however, these were always the interesting classes that I looked forward to studying.
- Dr. Simmons was amazing, really all my faculty were. I wish it was in person!

**New Assessment Rubric for Graduate Certificate in Biosecurity & Disaster Preparedness (starting with Fall 2019 cohort)**

<b>Class &amp; assignment</b>	<b>Competency</b>	<b>Learning outcomes (LO) linked to program competencies</b>	<b>Extent to which students demonstrate achievement of LO (Excellent, good, fair, or poor)</b>
BSDP 5100 Public Health & Disasters  Community threat assessment white paper	1: Analyze disaster planning data and methods, such as risk assessment, syndromic surveillance, and disaster plans	1a: Identify and quantify the risk from public health threats	
		1b: Conduct a risk assessment of a specified community	
	2: Use an evidence-based approach to develop and analyze human, animal, and environmental hazard control interventions	2a: Identify and cite relevant sources	
		2b: Apply information from relevant sources appropriately	
		2c: Apply/use biosecurity and emergency management nomenclature and terminology (such as “mitigation” and “risk assessment”) accurately	
	3: Apply the scientific characteristics, such as transmission routes and control measures, of major biological hazards to develop interventions that minimize human and animal disease	3a: Develop appropriate interventions that minimize human and animal disease	
3b: Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study			
BSDP 5206 Disaster Management & Risk Analysis  Community Risk Analysis	1: Analyze disaster planning data and methods, such as risk assessment, syndromic surveillance, and disaster plans	1a: Identify and quantify the risk from public health threats	
		1b: Conduct a risk assessment of a specified community	
	2: Use an evidence-based approach to develop and analyze human, animal, and environmental hazard control interventions	2a: Identify and cite relevant sources	
		2b: Apply information from relevant sources appropriately	
		2c: Apply/use biosecurity and emergency management nomenclature and terminology (such as “mitigation” and “risk assessment”) accurately	
	3: Apply the scientific characteristics, such as transmission routes and control measures, of major biological hazards to develop interventions that minimize human and animal disease	3a: Develop appropriate interventions that minimize human and animal disease	
3b: Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study			

Demonstrates achievement ranking system: Excellent (Consistent and accurate), good (almost always and usually accurate), fair (not consistent and/or multiple mistake), or poor (very inconsistent/missing and/or many mistakes)

**Planned Timeline for Assessing the Certificate Program Learning Outcome Measures**

<b>Learning Outcome Measure</b>	<b>Year It Will be Examined During the Program Assessment Process</b>
1a: Identify and quantify the risk from public health threats	2023
1b: Conduct a risk assessment of a specified community	2023
2a: Identify and cite relevant sources	2024
2b: Apply information from relevant sources appropriately	2024
2c: Apply/use biosecurity and emergency management nomenclature and terminology (such as “mitigation” and “risk assessment”) accurately	2024
3a: Develop appropriate interventions that minimize human and animal disease	2025
3b: Integrate appropriate scientific characteristics of an infectious disease into a scenario or case study	2025