SAINT LOUIS UNIVERSITY

Program Assessment: *Annual Report*

Program(s): **Master of Science in Biosecurity & Disaster Preparedness**

Department: **Epidemiology & Biostatistics**

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

Date: **6/1/18**

Primary Assessment Contact: **Terri Rebmann**

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

Note: Significant changes were made to the Program Assessment process this year based on feedback from UAC about last year's program assessment and on the findings from the 2017 program assessment.

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 ≥ 75% of the graduating MS students indicate a positive response on each of the "perceived achievement of competencies" questions (i.e., "Very confident" or "Somewhat confident").

The direct measures are to evaluate student performance on the culminating assignment in the BSDP Capstone and the culminating assignments in the BSDP 5103 and BSDP 5203 courses during the annual Institute Strategic Planning Retreat/Meeting (see rubric below). The goal is to have ≥ 75% of the graduating MS students achieve an "excellent" or "good" ranking on each of the assessed learning outcome measures from these culminating projects. Two learning outcome measures from two competencies (Use an evidence-based approach to develop and analyze human, animal, and environmental hazard control strategies, programs, and policies, taking into account legal and ethical considerations; and Analyze qualitative and quantitative data to accurately identify biological and other health hazards and measure risks, using epidemiological, statistical, and risk assessment methods and tools, such as syndromic surveillance) were assessed during this cycle: 1) Identify and cite relevant sources, and 2) Apply information from relevant sources appropriately.

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 ≥ 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 three required/core courses (BSDP 5960's development of a publishable quality paper/project related to a biosecurity-related topic, BSDP 5103's development of an infectious disease outbreak scenario paper, and

BSDP 5203's assessment of an agency/organization emergency management plan paper) was used for program assessment. Assignments from half of the graduating students were randomly selected and used for program assessment. Student assignments were de-identified before review to maintain confidentiality. Data was collected throughout the 2017/2018 academic year and assessed during the spring 2018 Institute for Biosecurity Strategic Planning Retreat/Meeting. The goal is to have ≥ 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 brought in report form and shared with the BSDP faculty at the 2018 Institute for Biosecurity Strategic Planning Retreat/Meeting (see attached). Faculty examined the data to determine the extent to which the goals were met (i.e., whether ≥ 75% of the graduating MS students indicated a positive response on each of the "perceived achievement of competencies" questions).

Direct measures: The de-identified student assignments were copied and provided in full to all Biosecurity & Disaster Preparedness faculty (both full-time and adjunct) who attended the spring 2018 Institute for Biosecurity Strategic Planning Retreat/Meeting. At the meeting, 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. Next, faculty read through each student assignment and discussed the extent to which faculty believed the 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. If faculty did not agree on the ranking for a student artifact, a vote was taken, with the majority winning.

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 Annual Institute for Biosecurity Retreat on Friday, May 4, 2018. All full-time faculty and two adjunct faculty participated in the Program Assessment.

Indirect measures of performance:

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

Qualitative comments from students via the exit interview and the student representative present at the Annual Institute for Biosecurity Retreat indicate that students are very happy with the MS Biosecurity and Disaster Preparedness program. Positive comments included the following:
"I found the program to be outstanding and very thorough."
"I feel confident after completing the program that I have the skills necessary to be competitive in the job market."

These findings exceed the expectations for all indirect measures.

Direct measures of program performance:

Competency 1 & Competency 2 learning outcome measure 1a (Identify and cite relevant sources): 100% of faculty rated all assessed students as being "excellent" for each of the three data artifacts

assessed.

Competency 1 & Competency 2 learning outcome measure 1b (Apply information from relevant sources appropriately): 100% of faculty rated all assessed students as being "excellent" for each of the three data artifacts assessed.

These findings exceed the 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 the competencies and learning outcome measures for the MS program in Biosecurity and Disaster Preparedness, at least for the learning outcomes that were measured this year. Therefore, faculty did not identify any necessary changes to the program curriculum at this time. In addition, given that the MS program has been phased out and only two students remain in the program, the faculty believed that it would be extremely challenging to modify the curriculum at this point unless it was to revise/update courses that are also used in the existing/ongoing Certificate or MPH BSDP programs. Significant changes were made to the assessment plan and the assessment process; see next section for details.

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?)*

Significant changes were made to the Program Assessment process and Program Assessment plans this year based on feedback from UAC, findings from the 2017 program assessment, and reorganization of the unit. Due to reorganization within the College for Public Health and Social Justice, the BSDP programs now fall under the Department of Epidemiology & Biostatistics; this was updated on the Program Assessment Plan. Based on findings from the 2017 Program Assessment, the number of indirect measures was reduced from eight to four. Based on feedback from UAC review and annual updates to the BSDP program competencies, the following changes were made to the Program Assessment: 1) learning outcomes were reworded/revised and simplified to measure only a single parameter, 2) the number of learning outcomes assessed each year has been reduced from eleven to two, 3) a plan has been developed to outline when each learning outcome will be assessed, to ensure that each will be evaluated on a regular basis, 4) the assessment rubric has been clarified to better demonstrate how student performance is being measured, and 5) BSDP competencies were updated based on programmatic changes. In addition, assessment for the MS was modified significantly to change from using the same assessment criteria as the Certificate to adding the Capstone culminating project as another data artifact of student performance so that all MS competencies could be assessed and more data artifacts are used in program assessment. A plan was developed for outlining the timing of assessment of all learning outcome measures (see attached). In addition, the rating/ranking system for student performance on the learning outcomes was modified from only yes/no (meets expectations/does not meet expectations) to a four-point ranking consisting of the following: 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). A revised/updated assessment plan is being submitted along with this report to reflect changes in the program assessment.

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 2018 for the Biosecurity & Disaster Preparedness MS Program

Class & assignment	**Competency**	**Learning outcomes (LO) linked to program competencies**	**Extent to which students demonstrate achievement of LO (Excellent, good, fair, or poor)**
BSDP 5103 Development of an infectious disease outbreak scenario paper	1: Use an evidence-based approach to develop and analyze human, animal, and environmental hazard control strategies, programs, and policies, taking into account legal and ethical considerations.	1a: Identify and cite relevant sources	
		1b: Apply information from relevant sources appropriately	
BSDP 5203 Assessment of an agency/organization emergency management plan paper	1: Use an evidence-based approach to develop and analyze human, animal, and environmental hazard control strategies, programs, and policies, taking into account legal and ethical considerations.	1a: Identify and cite relevant sources	
		1b: Apply information from relevant sources appropriately	
BSDP 5960 Biosecurity Capstone	1: Analyze qualitative and quantitative data to accurately identify biological and other health hazards and measure risks, using epidemiological, statistical, and risk assessment methods and tools, such as syndromic surveillance.	1a: Identify and cite relevant sources y	
		1b: Apply information from relevant sources appropriately	

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: Fall 2017 through Spring 2018

MS graduates' perceived confidence of performing the competencies [N=4]

Competency	Very Confident %	Somewhat Confident %	Neither Confident Nor Unconfident %
Analyze qualitative and quantitative data to accurately identify biological and other health hazards and measure risks, using epidemiological, statistical, and risk assessment methods and tools	100		
Use an evidence-based approach to develop and analyze effective human, animal, and environmental hazard control strategies, programs, and policies, taking into account legal and ethical considerations	100		
Explain the scientific characteristics, including transmission routes and control measures, of major biological hazards that result in human and animal health risk	100		
Create and disseminate tailored messages regarding biosecurity hazards and risks to responders, the public, the media, and policy makers	100		
Apply management principles in program, organizational, and community initiatives	100		
Use and/or interpret the terms and nomenclature of the biosecurity field	100		

Qualitative Comments from MS Graduates Collected Via the Exit Interview

- I found the program to be outstanding and very thorough.
- I feel confident after completing the program that I have the skills necessary to be competitive in the job market.

Planned Timeline for Assessing the MS Program Learning Outcome Measures

Learning Outcome Measure	Year It Will be Examined During the Program Assessment Process*
1a. Select appropriate data analysis approaches/techniques	2018
1b. Review and summarize the scientific literature to learn more about a research topic	2018
2a: Identify and cite relevant sources	2019
2b: Apply information from relevant sources appropriately	2019
2c: Apply/use biosecurity nomenclature and terminology (such as “isolation” and “quarantine”) related to infectious diseases accurately	2020
3a: Develop appropriate interventions that minimize human and animal disease	2020
3b: Integrate appropriate scientific characteristics of an infectious disease into a scholarly research paper, scenario, or case study	2021
4a: Communicate the biosecurity hazards and risks related to a research topic, scenario, or case study	2021
4b: Develop a health communication message that is appropriate for the intended audience	2022
5a. Identify disaster or biosecurity practice implications related to a scholarly research paper topic, scenario, or case study	2022
5b. Outline relevant interventions or future studies that should be implemented to address a gap in the biosecurity field	2022

*Timeline will end when the last MS student graduates, which is likely to be before all learning outcome measures have been assessed during an annual assessment.