STUDENT LEARNING ASSESSMENT REPORT

PROGRAM: Post-baccalaureate Certificate in Data science
SUBMITTED BY: Diane Murphy
DATE: October 28, 2015
BRIEFLY DESCRIBE WHERE AND HOW ARE DATA AND DOCUMENTS USED TO GENERATE THIS REPORT BEING STORED:

EXECUTIVE SUMMARY

Program description from the Course Catalog:

This program is for students who have previously earned a bachelor of science degree in any discipline. The certificate is designed to prepare individuals for positions as data scientist, in a specific industry as determined by their initial degree.

List all of the program's learning outcomes: *(regardless of whether or not they are being assessed this year)*

Learning Outcome	Year of Last Assessment	Assessed This Year	Year of Next Planned Assessment
Use statistical and other management techniques to solve a problem where significant numerical data exists		X	2015-2016
Configure a large database to optimize query and retrieval operations		X	2015-2016
Evaluate data analysis tools in the market, open-source and others		X	2015-2016
Apply a range of data science techniques to analyze a big data problem			2016-2017
Create appropriate visualizations for a large complex data set			2016-2017

Describe how the program's outcomes support Marymount's mission, strategic plan, and relevant school plan:

The Post-Baccalaureate Certificate in Data Science is fully compliant with the mission of Marymount University and the outcomes are based on the career preparation (data science is a new and fast growing field, with a high salary potential)). The program recognizes the new job skills required in the profession and offers specialized courses to increase each student's success in getting a good first job, and ultimately a career in the field.

Academic Excellence

- Emphasize inquiry learning at all levels and provide students and faculty with opportunities for research collaboration.
- Ensure a personalized education through small classes and faculty/student collaboration.
- Integrate an emphasis on ethics throughout the curriculum.
- Encourage cross-disciplinary collaboration.

Inquiry learning is a key in the program and all professors (full-time and part-time) are encouraged to use classroom time, in part, for hands-on application of the subject matter through individual and group assignments.

All courses are undergraduate courses and taken by IT students, particularly for those in the Data Science specialty.

Provide a brief description of the assessment process used including strengths, challenges and planned improvements and provide evidence of the existence of a culture of continuous improvement based on assessment:

In 2014-15, the assessment plan was derive by interaction at Department meeting and a subgroup of data science faculty. As there were no students enrolled in the program, there are no assessment results.

Provide a brief description of the assessment process used including strengths, challenges and planned improvements and provide evidence of the existence of a culture of continuous improvement based on assessment:

Describe how the program implemented its planned improvements from last year:

Not applicable.

Provide a response to last year's University Assessment Committee review of the program's learning assessment report:

Not applicable.

Outcomes and Past Assessment

Learning Outcome 1: Use statistical and other management techniques to solve a problem where significant numerical data exists

Is this outcome being reexamined? ☐ Yes ☐ No
If yes, give a brief summary of previous results (including trends) and any changes made to the program.

Assessment Activity

Outcome Measures *Explain how student learning will be measured and indicate whether it is direct or indirect.*	Performance Standard *Define and explain acceptable level of student performance.*	Data Collection *Discuss the data collected and student population*	Analysis *1) Describe the analysis process.* *2) Present the findings of the analysis including the numbers participating and deemed acceptable.*
Direct: Create an effective statistical analysis of a problem identified by the instructor	70% of students receive at least a good or very good score on the external evaluation on the assignment	Data is collected from an assignment in MSC325	The assignment results will be reviewed by a management science faculty member, other than the instructor No results were available.
Direct: Understand which statistical techniques apply to certain data sets	70% of students can correctly apply the correct statistical technique to 7 out of 10 of the data sets given	Data is collected from an assessment in MSC325	The assessment is performed by the instructor. No results were available.

Interpretation of Results

Extent this learning outcome has been achieved by students *(Use both direct and indirect measure results)***:**

No students in the program.

Program strengths and opportunities for improvement <u>relative to assessment of outcome</u>:

No students in the program.

Discuss planned curricular or program improvements <u>for this year based on assessment of outcome:</u>

The program needs to be marketed better. At present, it is just listed on the web site. The department will begin to discuss marketing ides, such as changing the name to include "big data".

Learning Outcome 2: Configure a large database to optimize query and retrieval operations

Is this outcome being reexamined? ☐ Yes ☐ No
If yes, give a brief summary of previous results (including trends) and any changes made to the program.

Assessment Activity

Outcome Measures *Explain how student learning will be measured and indicate whether it is direct or indirect.*	Performance Standard *Define and explain acceptable level of student performance.*	Data Collection *Discuss the data collected and student population*	Analysis *1) Describe the analysis process.* *2) Present the findings of the analysis including the numbers participating and deemed acceptable.*
Direct: Design a relational database in IT310	70% of students obtained 8 or more on the rubric for the assignment in IT310	Assignment results were posted on Blackboard and the post-bacc. students will be downloaded and given to the department chair	Chair reviews assignments against the assigned rubric. No students in the program.
Direct: Import data into a pre-defined data structure and execute several different types of queries	70% of students can get results for 8 of 10 questions	Assignment results were posted on Blackboard and the post-bacc. students will be downloaded and given to an external database specialist.	External database specialist reviews assignments against the assigned rubric. No students in the program.

Interpretation of Results

Extent this learning outcome has been achieved by students *(Use both direct and indirect measure results)***:**

No students in the program.

Program strengths and opportunities for improvement relative to assessment of outcome:

No students in the program.

Discuss planned curricular or program improvements <u>for this year based on assessment of outcome:</u>

The program needs to be marketed better. At present, it is just listed on the web site. The department will begin to discuss marketing ides, such as changing the name to include "big data".

Learning Outcome 3: Evaluate data analysis tools in the market, open-source and others

Is this outcome being reexamined? ☐ Yes ☐ No
If yes, give a brief summary of previous results (including trends) and any changes made to the program.

Assessment Activity

Outcome Measures *Explain how student learning will be measured and indicate whether it is direct or indirect.*	Performance Standard *Define and explain acceptable level of student performance.*	Data Collection *Discuss the data collected and student population*	Analysis *1) Describe the analysis process.* *2) Present the findings of the analysis including the numbers participating and deemed acceptable.*
Direct: In MSC 390, prepare a report on open source software for a specific industry assigned by the instructor	70% of students, received an 8 or more on the rubric for the content of the report	Assignment results were posted on Blackboard and the post-bacc. students will be downloaded and given to a member of the industry segment.	Industry representative reviews assignments against the assigned rubric. No students in the program.
Direct: In MSC390, the final project includes a section on the selection of data science techniques.	70% of students, received an 8 or more on the rubric for the content of the report	Reports are posted on Blackboard and the post-bacc. students will be downloaded and given to the department chair.	Chair reviews assignments against the assigned rubric. No students in the program.

Interpretation of Results

Extent this learning outcome has been achieved by students *(Use both direct and indirect measure results)***:**

No students in the program.

Program strengths and opportunities for improvement <u>relative to assessment of outcome</u>:

No students in the program.

Discuss planned curricular or program improvements <u>for this year based on assessment of outcome:</u>

The program needs to be marketed better. At present, it is just listed on the web site. The department will begin to discuss marketing ides, such as changing the name to include "big data".