Program: Data Science

Academic Program Assessment Plan (2017-2018)

1. Please review last year's assessment results as well as the Academic Program Assessment Report with the faculty in your program. How does your program plan to take these results into consideration in future programmatic planning?

    The program was launched in fall 2015. We at UWGB are going to have our first graduate this Fall (2017). Based on the input from assessment data that we have collected, we have revised our plan.

    We initially had seven learning outcomes (competencies). We realized that one of the learning outcomes / competency was already being captured in another competency, so we have decided to eliminate one of them. The revised learning outcomes / competencies (A through F) are provided in Appendix A. The DS course list is provided in Appendix B.

    We are going to have six learning outcomes (competencies) A through F. Going forward we plan to collect assessment data on all the learning outcomes (A through F). We are going to reflect on two competencies every year, thus having a three-year assessment cycle. Following matrix provides an overview of the assessment plan based on a three-year assessment cycle.

    2017-2018 – Collect Data on all competencies – Reflect on Competencies A and B in Jan / Feb 2018
    2018-2019 - Collect Data on all competencies – Reflect on Competencies C and D in Jan / Feb 2019
    2019-2020 - Collect Data on all competencies – Reflect on Competencies E and F in Jan / Feb 2020
    2020-2021 - Collect Data on all competencies – Reflect on Competencies A and B in Jan / Feb 2021
    2021-2022 - Collect Data on all competencies – Reflect on Competencies C and D in Jan / Feb 2022
    2022-2023 - Collect Data on all competencies – Reflect on Competencies E and F in Jan / Feb 2023

2. Please review your program's Learning Outcomes. Do any of them need to be updated or clarified?

    a. Please provide brief indications of the kinds of assessment (e.g. course exams, term papers, course projects, senior seminar, senior interview, etc.) that might be used to assess each outcome. (The purpose here is to see that your program has considered ways it might measure each outcome.)

        We will be using some direct methods such as tests, papers, case studies, and embedded assessments.

    b. Please compare your Learning Outcomes to the University's main learning objectives: interdisciplinary, problem-focused education; critical thinking; diversity; environmental sustainability; and engaged citizenship. (These objectives were identified in the MLLO Project,

which may be found here: http://www.uwgb.edu/MLLO/.) Which programmatic outcomes match university mission outcomes?

The spirit of our program aligns very well with the UWGB's mission of interdisicplinarity. The program level learning goal "E" (Students will be able to...value and safeguard the ethical use of data in all aspects of their profession) reflects the UWGB's mission of citizenship. All the program level learning goals (particularly, A, B, and C) are geared towards critical thinking, which is an UWGB mission as well.

3. Which outcome will you assess this year (2017-2018)?

    We are planning to assess competencies A and B this year.

4. Which technique will you use to assess this outcome?

    We will be using some direct methods such as tests, papers, case studies, and embedded assessments. We plan to use the following techniques in the different courses as outlined here:

    Competency A: DS730 (Final project)

    Competency B: DS705 (Final exam)

5. Which course or group of students will you assess on the outcome chosen above and when?

    We plan on assessing all of the students in the designated courses.

Appendix A

MS in Data Science Competencies and Program Outcomes		Course Used for Assessment	Data Collection	Time of Review
Competency A	Collect and manage data to devise solutions to data science tasks.	730	Ongoing	Spring 2018 (Feb meeting)
Competency B	Select, apply, and evaluate models to devise solutions to data science tasks.	DS 705	Ongoing	Spring 2018 (Feb meeting)
Competency C	Interpret data science analysis outcomes.	DS 710	Ongoing	Spring 2019 (Feb Meeting)
Competency D	Effectively communicate data science related information in various formats to appropriate audiences.	DS 745	Ongoing	Spring 2019 (Feb Meeting)
Competency E	Students will be able to...value and safeguard the ethical use of data in all aspects of their profession.	DS 760	Ongoing	Spring 2020 (Feb Meeting)
Competency F	Transform findings from data resources into actionable organizational strategies.	780	Ongoing	Spring 2020 (Feb Meeting)

Appendix B

Assessment Plan: Following courses will be assessed for the six learning competencies.

        Competency A: DS730 (Final project)

        Competency B: DS705 (Final exam)

        Competency C: DS710 – (One specific assignment)

        Competency D: DS745 – (Based on three projects)

        Competency E: DS760 – (One specific assignment, TBD)

        Competency F: DS780 – (TBD)

Appendix C

List of MSDS courses

        DS 700: Foundations of Data Science
        DS 705: Statistical Methods
        DS 710: Programming for Data Science
        DS 715: Data Warehousing
        DS 730: Big Data: High-Performance Computing
        DS 735: Communicating About Data
        DS 740: Data Mining
        DS 745: Visualization and Unstructured Data Analysis
        DS 760: Ethics of Data Science
        DS 775: Prescriptive Analytics
        DS 780: Data Science and Strategic Decision-Making
        DS 785: Capstone