UNIVERSITY OF DETROIT MERCY

Core Curriculum Outcomes Assessment Summary Form

This form is to be completed by a representative from the Core Curriculum Assessment Sub-Committee. The information provided in this form will be used by University of Detroit Mercy to inform stakeholder groups about Detroit Mercy's commitment to the intellectual, spiritual, moral and social development of all undergraduate students as they navigate through the Core Curriculum. A PDF version of this completed form will be posted to the Academic Affairs Assessment website.

1. CORE OUTCOMES INFORMATION

Core Curriculum Area *

◉ Knowledge Area

◯ Integrating Theme

2. Enter the Knowledge Area or Integrating Theme of the Outcomes Assessed:
For example, KA-A1. Oral Communication or Integrating Theme 1 - Reading, Writing, & Research Across The University *

> KA-B1 Quantitative and Symbolic Reasoning

3. Form Completion Date: *

> 5/12/2025

4. Assessment Overview:

Briefly share how the outcome identified above was assessed. Include semester and year, how student artifacts were collected, who performed the assessment, and what assessment tool was used.

The core curriculum knowledge area B1 Quantitative and Symbolic Reasoning includes recognition, conversion, interpretation, communication, and application of mathematical (e.g.: polynomial, rational, radical, exponential, and logarithmic) models to solve arithmetic, algebraic, and geometric problems. In Fall 2024 student artifacts were solicited from thirteen full-time and adjunct faculty who taught core approved courses in the fall 2024 semester (MTH 1010, MTH 1020/1030/1040, MTH 1110, MTH 1400, MTH 1410, MTH 1420). Twelve faculty members submitted the requested artifacts; three from each of their course sections resulting in 54 total student artifacts. In February 2025, faculty attended a norming and scoring session for inter-rater reliability using the Core Curriculum Student Learning Outcomes Rubric: KA-B1. Quantitative & Symbolic Reasoning. It is worth noting that this is not the same rubric used during the last assessment cycle, but rather an improved document. Faculty were paired up to assess a set of student artifacts and record the rubric scores in the B1 Quantitative and Symbolic Reasoning Excel Scoring Sheet. In March 2025, faculty attended a follow-up meeting to review all of the recorded rubric dimension scores and identify student strengths and weaknesses. The rubric contains five-

dimension areas that reflect the core outcomes for B1. A four-point rubric scale was used (4=capstone, 3=milestone, 2=milestone, 1=benchmark, 0=no evidence) that also included NA for not applicable. A mean score of 3.0 was expected in rubric dimensions B1a (Interpretation), B1b (Representation), and B1c (Calculation). A mean score of 2.5 was expected in rubric dimensions B1d (Application/Analysis, B1e (Assumptions), and B1f (Communication).

5. Results, Planned Actions, and/or Actions Taken

The complete set of randomly selected student artifacts (n=54) yielded rubric dimension scores ranging from 2.3 to 3.0. The mean score for B1a was 2.9, for B1b was 3.0, and for B1c was 3.0. The mean score for B1d was 2.4, for B1e was 2.3, and for B1f was 2.6. It is also worth noting there was a high number of NAs for rubric dimension B1e. Students areas of greatest strength were in B1b (Representation-ability to convert between various mathematical forms) and B1c (Calculation). The area of greatest weakness was in the B1e (Assumptions-the ability to make and evaluate important assumptions in estimation, modeling and data analysis).

The consensus in the March follow up meeting was that students need additional training in using the results of their calculation to make an argument and clearly communicate the results. We need to give instructors (especially new instructors) guidance on how to incorporate problems that address applications/analysis, assumptions, and communication into their courses. Full-time faculty should work together to create a pool of test questions that address these rubric dimensions and share it with adjunct faculty. We also need to share sample student work to show what kind of answers instructors are likely to get in the beginning of the semester as well as the kind of answers we are trying to move students towards.