Academic Program Assessment Plan (AY 2016 – 2019)

Program: Mathematics and Computer Science

Upon successful completion of program of study in mathematics, students will earn B.A. in Mathematics, and will give evidence of the following program goals and outcomes:

GOAL #1
Basic theories and content of mathematics

LO1: Students will perform, understand, and apply the properties of mathematical operations through assignments, and testing in the program's core coursework.

GOAL #2
Analysis and application of appropriate mathematical procedures to develop critical and logical thinking

LO2: Students will produce solutions of real world and theoretical problems in a precise and logical fashion and identify key mathematical structures through assignments, presentations, and testing in the program's core coursework.

GOAL #3
Effective communication and teamwork

LO3: Students will communicate effectively orally and in writing and develop skills for productive teamwork through assignments/projects, presentation, and testing in the program's core coursework.

GOAL #4
Technological competency

LO4: Students will use computer-aided technology to visualize mathematical graphs and functions, and support problem solving with accuracy, be facile with technology usage and functions, and be discriminate in the use of programming and applications, as evidenced in assignments, presentations, and testing in the program's core coursework.

Program: Mathematics and Computer Science	LO 1: Knowledge and Theories	LO 2: Critical Thinking and application	LO 3: Communication and teamwork	LO 4: Technology Competency
Related ISLG	1, 2, 3a,	1, 2, 3a., 3b	1, 2, 3a, 8	1, 2, 3a, 4, 8
Related BRIDGE General Education Goals (if applicable)				
Related Accreditation Standard (if applicable)				
Program Course and Experiential Learning Mapping to Program Outcomes				
How do students learn this? In what course(s) and/or co-curricular experience(s)?	MA115, MA116, MA209, MA210, MA215, MA218, MA331, MA400, MA401	MA115, MA116, MA209, MA215, MA321, MA331, CS123	MA210, MA215, MA311, MA312, MA321, MA 400, MA401	MA115, MA116, MA209, MA331, CS123
How and in what <u>course(s)</u> do they demonstrate that they have <u>achieved</u> this outcome.				
Formative Assessment will occur in …	MA115	MA116	MA210	MA115/CS123

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Summative Assessment will occur in…	MA401	MA331	MA401/MA312	MA331
Assessment Protocol				
How and when do you assess the achievement of *all students* in your program before they graduate and record the results of your assessment?				
Formative Assessment				
Direct Evidence	MA115 Selected class assignments evaluated by rubric and content analysis.	MA116 Test-embedded questions that measure student solutions of real-world problems, evaluated by rubric and content analysis.	MA210 Selected class assignments evaluated by rubric and content analysis	MA115/CS123 In-class technology based assignment evaluated by a rubric
Indirect Evidence	Analysis of DFW rates in program's courses Students rates of program and degree completion and timeframe for such.			
Summative Assessment				
Direct Evidence	MA401 Final exam evaluated using item	MA331 Final exam evaluated using item	MA401/MA312 Final exam evaluated using item analysis	MA331 Semester project that measures technological competence,

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	analysis related to program content.	analysis related to program content.	related to program content.	evaluated by rubric.
Indirect Evidence	Analysis of DFW rates in program's courses Students rates of program and degree completion and timeframe for such.			
What do you consider satisfactory achievement of this outcome? WHY?				
Formative Assessment				
Direct Evidence	75% percent of students achieve at or above the developing level (level 2 out of 4) in all rubric criteria. Content analysis shows 75% of identified objectives are correctly answered by at least 60% of the students.	75% percent of students achieve at or above the developing level (level 2 out of 4) in all rubric criteria. Content analysis shows 75% of identified objectives are correctly answered by at least 60% of the students.	75% percent of students achieve at or above the developing level (level 2 out of 4) in all rubric criteria. Content analysis shows 75% of identified objectives are correctly answered by at least 60% of the students.	80% percent of students achieve at or above the developing level (level 2 out of 4) in all rubric criteria.
Indirect Evidence				
Summative Assessment				
Direct Evidence	Content analysis shows 75% of identified objectives are correctly	Content analysis shows 75% of identified objectives are correctly	Content analysis shows 75% of identified objectives are	80% percent of students achieve at or above the accomplished

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	answered by at least 80% of students.	answered by at least 80% of students.	correctly answered by at least 80% of students.	level (level 3 out of 4) in all relevant rubric criteria.
Indirect Evidence	Analysis of DFW rates in program's courses for those courses identified as "gateway" show rates at or below 15%. Students rate of program and degree completion and timeframe for such meets or exceeds the university's average.			
Program Assessment Time Frame (AY 2016-2019)				
Time Frame for Assessing the outcome.	Year 3. Data collected annually. AY 2018-2019	Year 1. Data collected annually. AY 2016-2017	Year 2. Data collected annually. AY 2017- 2018	Year 2. Data collected annually. AY2017- 2018

GCU Program Assessment <u>Report</u> Form

GCU Program Assessment Annual Report
Program: *Division:*   *Date:*   *Program Assessment Liaison:*
Based on the above plan and the designated outcome(s) assessed for the academic year, the major program submits a Program Assessment Report annually that contains the program assessment plan, assessment data and analysis, and action steps to be taken by the program based on these results. See below for the outline of this report.
Learning Outcome(s) Assessed:
Assessment Protocol Description
Assessment Data and Findings
Analysis of Data:
Are these results satisfactory? Why or Why not?
Action Plan based on Assessment Results:
Time Frame for Action Plan:

Assessment Data: Please include the data that you used to complete the above report. Attach rubrics, tallies, and method of validation.