

Annual Assessment Report

Department: Mathematics and Computer Science

Academic Year: 2018-2019

Date of Submission: November 8, 2019

Department Chair: Russell W. Howell

I. Response to the previous year PRC’s recommendations

Item: Identify the potential actions that might be taken to assist students develop their problem solving abilities.	Response: We have restructured MA 180 (Problem Solving) so that: (1) it is now a 2-unit course offered in the spring semester of each year, (2) it is now a “Capstone Course” (and renamed to “Capstone Problem Solving”), and (3) target to senior majors. This move will allow for greater uniformity in the class composition, and ensure that problems of sufficient depth will be pursued both individually and corporately.
Item: Continue the collection of student work for a multi-year data pool.	Response We will continue with this collection process beginning in the spring term of 2020, when MA 180 (Capstone Problem Solving) is to be first offered as a 2-unit class.
Item:	Response:
Item:	Response:
Notes:	

II A. Program Learning Outcome (PLO) assessment

If your department participated in the ILO assessment you may use this section to report on your student learning in relation to the assessed ILO. The assessment data can be requested from the Dean of Curriculum and Educational Effectiveness.

Program Learning Outcome	Christian Connection: Students will write a reflective paper identifying relationships between their identities as Christians and mathematicians or computer scientists, and detailing how their thinking has changed as a result of their time at Westmont.
Who is in	Russell Howell is in charge, the entire department is involved.

Charge /Involved?	
<u>Direct Assessment Methods</u>	<p>Method (from assessment plan): “Each term in MA 180 (Problem Solving), student essays in response to the departmental prompt will be collected. Students will typically produce two responses to the prompt in two different years. The essays will be evaluated according to the departmental rubric (attached as a pdf document to this report).”</p> <p>Implementation:</p> <ol style="list-style-type: none"> 1. From the Fall of 2015 to the Spring of 2019 essays were collected in MA 180 (Problem Solving). Students were told that the essays would be evaluated according to the departmental rubric (attached as the file “christian-connection-rubric.pdf” to this report). 2. During May of 2019 the department met to evaluate the essays. 3. Two essays were selected for “training purposes.” That is, the department members discussed the essays and came to a consensus regarding the scoring of them. The results of that training are indicated at the bottom of the “assessment-results-2018-2019.pdf” file attached to this document. The last names of the students involved are in the left-most column, and departmental members initials, with accompanying scores, are given in subsequent columns. 4. The remaining essays were divvied up, with two departmental members reviewing each essay.
<u>Indirect Assessment Methods</u>	<p>Conversations with students during departmental seminars and over meals on “contextual issues” such as: (1) what pursuing the major in mathematics or computer science looks like from a Christian perspective—e.g., what would be considered appropriate (or inappropriate) driving motivations for pursuing the major, (2) how an individual student might best use his or her talent in mathematics or computer science to serve society.</p>
Major Findings	<ol style="list-style-type: none"> 1. As the “assessment-results-2018-2019.pdf” indicates, there was a great deal of consistency in the evaluation of student essays by the departmental members. This consistency is evident by the “Delta P” (representing the variation in judgments of the “Perspective” category in the “christian-connection.pdf” rubric) and the “Delta C” (representing the variation in judgments in the “Connection” category of the “christian-connection.pdf” rubric). This consistency is probably due to the “training session” that occurred at the beginning of the process. 2. The department is pleased that the mean score of students was above 2.0 (“adequate”) in three of the four years of essay collection periods. For 2015-2016 the mean of the seven collected essays was 2.14; for 2016-2017 the mean of the ten essays was 2.17; for 2017-2018 the mean of the seven essays was 2.14. 3. The disappointing mean of 1.5 for the 2018-2019 year is explained in part by there being only two papers to evaluate, but the department will work to ensure that, in future assessment cycles on this outcome, all students

	score in at least the “adequate” category.
Closing the Loop Activities	<ol style="list-style-type: none"> 1. The change in MA 180 (Problem Solving) from a 1-unit course to a 2-unit course should allow more time for thinking seriously about composing reflective essays. 2. Targeting this course to senior (possibly junior) majors should help ensure greater maturity in the composition of those essays. 3. The name change to “Capstone Problem Solving” may add further weight to the “gravitas” of the expected essays.
Collaboration and Communication	
The department discussed the above outcomes and concur with the assessment and recommendations.	

or/and

II B. Key Questions

Key Question	
Who is in Charge/Involved?	
<u>Direct Assessment Methods</u>	
<u>Indirect Assessment Methods</u>	
Major Findings	
Recommendations	
Collaboration and Communication	

III. Follow-ups

Program Learning Outcome or Key Question	Christian Connection
Who was involved in implementation?	Rusell Howell and Anna Aboud
What was decided or addressed?	We will meet to discuss the implementation of evaluating this outcome for the newly-revised two-unit MA 180 (Capstone Problem Solving) course.
How were the recommendations implemented?	To be determined as the course progresses in the spring of 2020.
Collaboration and Communication To be completed in the spring of 2020 because of the change in the MA 180 (Capstone Problem Solving) course.	

IV. Other assessment or Key Questions related projects

Project	
Who is in Charge /Involved?	
Major Findings	
Action	
Collaboration and Communication	

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V. Adjustments to the Multi-year Assessment Plan (optional)

Proposed adjustment	Rationale	Timing

VI. Attachments

- A. Prompts or instruments used to collect the data: See the “christian-connection-rubric.pdf” attachment.
- B. Rubrics used to evaluate the data: See again the “christian-connection-rubric.pdf” attachment.
- C. Relevant assessment-related documents (optional): See the “assessment-results-2018-2019.pdf” attachment.