



## Program Assessment Report (PAR)

Mathematics, BA (MTH) Baccalaureate Degree

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ACADEMIC YEAR COVERED BY THIS REPORT: [AcademicYear]

### I. PROGRAM LEARNING OUTCOMES

1. Graduates will be able to solve problems in a broad range of significant Mathematics and Statistics. 2. Graduates will be able to produce and judge the validity of rigorous theoretical arguments. 3. Graduates will be able to communicate mathematical/theoretical ideas and arguments.

### II. PROCEDURES USED FOR ASSESSMENT

#### A. Direct Assessment

An assessment plan containing learning outcomes was designed in the spring of 2019. It was implemented for the first time at the of the fall 2019 semester by collecting data relating to the first learning outcome. The data collected was analyzed during the first week of the spring 2020 semester. The courses selected were MTH 4460, MTH 3320, and STT 3600. Data were collected from key questions on final exams. The key questions were identified by the instructor in collaboration with the undergraduate committee. All students' exams were assessed.

#### B. Scoring of Student Work

The instructors scored the key questions using the scales they had adopted for these. The undergraduate committee used the faculty members' scores to determine if the learning objective had been met. A score of B or higher was using to indicate the learning objective had been met.

### **C. Indirect Assessment**

We have started conducting exit interviews during which we have asked students what we could have done differently. Starting with the Fall 2021 graduating class we will add questions asking students to rate their learning of each learning outcome and also the suggested questions.

### **III. ASSESSMENT RESULTS/INFORMATION:**

We found that 100% of the majors in MTH 4460, 77% of the students in MTH 3320, and 68% of the students in STT 3600 met the learning outcome.

According to the assessment plan we expect 75% of our graduates to meet the learning outcome. STT 3600 did not meet the benchmark. MTH 3320 barely exceeded it.

The difference in how well students' met the benchmark may be due to differences in the pre-requisites for the courses assessed. MTH 4460 students take a sequence of courses designed for future elementary and middle school teachers where the focus is to explain their reasoning. The pre-requisite courses for MTH 3320 and STT 3600 have been identified by program faculty as focusing exclusively on computational skills at the expense of developing mathematical reasoning and communication skills.

### **IV. ACTIONS TO IMPROVE STUDENT LEARNING**

In a separate assessment the focus on computational skills was determined to be a problem of the introductory Calculus sequence which is being addressed in the next academic year. We anticipate that this wholistic attention to reasoning and problem solving will positively impact the achievement of this learning objective in higher level courses. The assessment is conducted by the instructor in collaboration with the Undergraduate Committee and the results are analysed by the Undergraduate Committee. The committees overseeing the courses and programs all have representatives on the Undergraduate Committee.

### **V. SUPPORTING DOCUMENTS**

Additional documentation, when provided, is stored in the internal Academic Program Assessment of Student Learning SharePoint site.