

REPORT ON AY2022-2023 ACADEMIC ASSESSMENT

Submission date: 11/15/2023

Assessment Plan covered in the report: Mathematics BA/BS

College: College of Arts and Sciences

Campuses where the program(s) is delivered: Anchorage KOD KPC MSC PWSC

Submitted by: Sam Cook, Associate professor and Chair, Department of Mathematics & Statistics, scook25@alaska.edu

After responding to the questions below, the program should email this form to the dean, with a copy to the appropriate community campus director(s) if the program is delivered on a community campus.

- 1. Please list and number the Program Student Learning Outcomes your program assessed in AY23. For each outcome, indicate one of the following: Exceeded faculty expectations, Met faculty expectations, or Did not meet faculty expectations.**

Example: 1. Communicate effectively in a variety of contexts and formats – Exceeded faculty expectations; 2. Adopt critical perspectives for understanding the forces of globalization and diversity – Met faculty expectations.

1. Demonstrate knowledge of the techniques of modern mathematical subjects including all of algebra, analysis, discrete mathematics, and probability and statistics: Met expectations
2. Demonstrate an ability to solve problems using skills such as deductive logic, data analysis, computation, modeling, connections, and other mathematical techniques: Met expectations
3. Demonstrate an ability to create mathematical proofs: Met expectations
4. Demonstrate an ability to read, write, and speak mathematics: met expectations
5. Demonstrate cognizance of their mathematical knowledge, of mathematics around them, and of the benefit of continued study of mathematics: Met expectations

- 2. Describe your assessment process in AY23 for these Program Student Learning Outcomes, including the collection of data, analysis of data, and faculty (and other, e.g., advisory board) conversations around the findings. (1000 words or less)**

The ETS Major Field Test in Mathematics is a graduation requirement for all mathematics majors that

provides an external validation of knowledge. Submission of a student portfolio is a graduation requirement for all mathematics majors. The Department uses the portfolios to assess all five outcomes listed above. The portfolios include artifacts from each of the required fields of mathematics, which demonstrate meeting outcome 1. The exit survey questions address student cognizance of subject matter and need for life-long learning. The survey also asks for general comments that can be used for program improvement.

3. What are the findings and what do they tell the faculty about student learning in your program? (1000 words or less)

Students are able to provide example assignments (artifacts) for each of the outcomes. The quality of the artifacts roughly correlates with grades. The scores on the ETS Major Field Test show an acceptable level of knowledge, and roughly correlate with grades. There were not usable results from the exit survey.

4. Based on the findings, did the faculty make any recommendations for changes to improve student achievement of the Program Student Learning Outcomes? Select Yes or No.

- i. Please describe the recommended action(s), what improvements in student learning the program hopes to see, the proposed timeline, and how the program will know if the change(s) has worked. If no recommendations for changes were made, please explain that decision. (1000 words or less)**

Faculty emphasize to students in all upper division mathematics and statistics courses, and in Fundamentals of Mathematics, the importance of identifying artifacts and including them in their portfolios along with reflections. We hope that by emphasizing this in all math classes, we will see improvement over multiple semesters.

5. In the past academic year, how did your program use the results of previous assessment cycles to make changes intended to improve student achievement of the Program Student Learning Outcomes? Please check all that apply.

- Course curriculum changes
- Course prerequisite changes
- Changes in teaching methods
- Changes in advising
- Degree requirement changes
- Degree course sequencing
- Course enrollment changes (e.g., course capacity, grading structure [pass/fail, A-F])
- Changes in program policies/procedures
- Changes to Program Student Learning Outcomes (PSLOs)
- College-wide initiatives (e.g., High-Impact Practices)

- Faculty, staff, student development
- Other
- No changes were implemented in AY23. *(If no options above were selected)*

If you checked “Other” above, please describe. (100 words or less)

- 6. Do you have any information about how well these or other past improvements are working? Are they achieving their intended goals? Please include any data or assessment results that help you demonstrate this. (1000 words or less)**

It is still unclear if the examples in portfolios are making it easier for students when constructing their portfolios. Introduction of mathematical typesetting (LaTeX) in Mathematics A264, Introduction to the Mathematics Major, is being reflected in inclusion of typeset artifacts in portfolios.

DEAN SECTION (Due to the program on January 15)

After completing the Dean Section and signing it, the dean should email this form to the program, and copy uaa_ooo@alaska.edu for posting. If the program is delivered on one or more community campus, the dean should consult with the appropriate community campus director(s) on the response and copy the appropriate community campus director(s) when emailing the response to the program.

- 1. Based on the program’s responses above, what guidance and support do you have for the program moving forward? (200 words or less)**

Assessing five program outcomes is ambitious for one review (as long as all outcomes are reviewed in a seven-year cycle), the program is encouraged to consider assessing fewer outcomes and doing a deeper analysis of the findings.

- 2. Discuss what the program is doing particularly well in terms of its processes for the assessment and improvement of student learning, for example, the use of a common rubric or prompt, a signature assignment, etc. (200 words or less)**

Use of portfolios, major field test and exit exam give multiple avenues for assessing outcomes of the program.

Dean’s signature:

Jenny McNulty

Date: 1/12/2024