Academic Affairs
University of Alaska Anchorage

3211 Providence Drive
Anchorage, AK 99508-4614
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2021 ANNUAL ACADEMIC ASSESSMENT REPORT FORM
(Due October 15 to the dean)

PROGRAM SECTION (Due to the dean on October 15)

Submission date: 10/11/2021

Submitted by: Mark Fitch, Professor of Mathematics, mafitch@alaska.edu

Program(s) covered in this report: Mathematics BA/BS

If you selected "Other" above, please identify. *(100 characters or less)*

College: College of Arts and Sciences

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

Specialized accrediting agency (if applicable): N/A
If explanation is necessary, such as only some of the certificates and degrees are covered by the specialized accreditation, briefly describe:

INSTITUTIONAL STUDENT LEARNING CORE COMPETENCIES

In 2020, UAA launched a consensus-based, deliberative process to identify the key skillsets that help students achieve academic and post-graduation success. After a year-long process that included students, faculty, staff, administrators, alumni, and employers, the UAA community identified four "core competencies" at the heart of a quality UAA education. Students develop mastery of these competencies through curricular (e.g., courses), co-curricular (e.g., internships, conferences), and extra-curricular (e.g., student clubs) learning experiences.

After the stakeholder-based process in AY20, UAA conducted a pilot project focusing on the core competency of Personal, Professional, and Community Responsibility (PPCR). This decision was based on input from the 2020 Annual Academic Assessment Retreat.

Question #1 below is designed to engage program faculty in thinking about how they can or already do promote student learning in this core competency.

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1. **Personal, Professional, and Community Responsibility: The knowledge and skills necessary to promote personal flourishing, professional excellence, and community engagement.**
    - **What would you hope a student would say if asked where in your program or support service they had the opportunity to develop proficiency in this Core Competency? *(500 characters or less)***
      We hope that students recognize that the logic they have learned and the understanding that different conclusions result from different axiom sets will help them understand and articulate various viewpoints and interact with understanding with a broad variety of people. Students should recognize that the required e-portfolio can help them reflect, communicate, and market their skills.
    - **Do you have an example that could be a model for the university of an intentionally designed course, assignment, or activity that showcases the student learning in this core competency? ☒Yes ☐No**
      If yes, please briefly describe. *(500 characters or less)*
      The MATH A264 course Introduction to the Mathematics Major gives students the opportunity to learn and practice professional skills including mathematical typesetting and the use of computer algebra systems. Participants discover opportunities for research, graduate study, and careers. They meet their peers, more senior students, and alumni working in a variety of fields to discuss the expectations and paths to success in the major and in their careers ahead.
    - **Do you have any ideas about where your program or the university might develop other intentionally designed opportunities for students to develop proficiency in this core competency? ☒Yes ☐No**
      If yes, please briefly describe. *(500 characters or less)*
      MATH A264 and the practicum can be refined to make this competency more explicit and increase the value of this course and the practicum.

PROGRAM STUDENT LEARNING OUTCOMES

2. **Please list the Program Student Learning Outcomes your program assessed in AY21. For each outcome, indicate one of the following: Exceeded faculty expectations, Met faculty expectations, or Did not meet faculty expectations.**

Example: Communicate effectively in a variety of contexts and formats – Exceeded faculty expectations.

Demonstrate knowledge of the techniques of modern mathematical subjects including all of algebra, analysis, discrete mathematics, and probability and statistics.
Met expectations.
Demonstrate an ability to solve problems using skills such as deductive logic, data analysis, computation, modeling, connections, and other mathematical techniques.

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Met expectations.
Demonstrate an ability to create mathematical proofs.
Met expectations.
Demonstrate an ability to read, write, and speak mathematics.
Met expectations.
Demonstrate cognizance of their mathematical knowledge, of mathematics around them, and of the benefit of continued study of mathematics.
Met expectations.

3. **Describe your assessment process in AY21 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. *(750 characters or less)***

The ETS Major Field Test for Mathematics is a graduation requirement for all math majors that provides an external validation of knowledge. From the student portfolios the department uses the comments from the student goals, description of courses taken, and reflections to measure five outcomes: knowledge, problem solving, proofs, communication, and cognizance. The presence of meaningful student artifacts from each of the required (core) fields of mathematics demonstrates meeting outcome I (knowledge).
The exit survey questions address student cognizance of subject matter and need for life-long learning. They are also asked for general comments that can be used for program improvement.

4. **What are the findings and what do they tell the faculty about student learning in your program? *(750 characters or less)***

Students are gaining knowledge of the core subjects. They are clearly using multiple methods to seek answers including increased evidence of use of statistical methods. They provided ample evidence that they can figure out and solve problems and write coherent proofs. There has been increased evidence of their ability to format these proofs well.
Students provide extensive evidence of their ability to write about mathematics. Evidence of speaking mathematics is present, but does not show the same strength. Evidence of reading mathematics is increasing, largely due to specific courses. They continue in large part to be aware of when they learned topics, developed skills, and gained confidence.

5. **Based on the findings, did the faculty make any recommendations for changes to improve student achievement of the program student learning outcomes? Please describe the recommended action, what improvement in student learning the program hopes to see with this change, the proposed timeline, and how the program will know if the change has worked. If no recommendations for changes were made, please explain that decision. *(750 Characters or less)***

Our recommendations at this time are solely for improved assessment.

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PROGRAM IMPROVEMENTS AND ASSESSING IMPACT ON STUDENT LEARNING

6. **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 AY21.

If you checked "Other" above, please describe. ***(100 characters or less)***
Improved portfolio template and directions

7. **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.** ***(750 characters or less)***

Changes to the assessment process have been effective. More consistent artifacts are being inserted in portfolios based on changes to course assignments and some based on more regular submissions (checking the portfolio in each upper division class).

8. **Programs are not required to respond to question #8 below for their report due on October 15, 2021. Question #8 will be required for the next round and moving forward.**

9. **Do you have any examples of post-graduate success you want to highlight? For example, major scholarships, the percent of students who pass licensure examinations, the percent of students accepted to graduate programs, the percent in post-graduation employment in the field or a related field.** ***(750 characters or less)***

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DEAN SECTION (Due to the program on January 15)

1. **Based on the program's responses above, what guidance and support do you have for the program moving forward? Is there a particular area the program should focus on?**

   In the next evaluation cycle the Department is encouraged to pursue the evaluation of a wider selection of courses, including entry level courses, and also to incorporate the use of quantitative data in addition to exit exams.

   It is recommended that all programs review their Program Assessment Plan to ensure clear inclusion of the new UAA Core Competencies and in particular to address the closing of any equity gaps in the program.

2. **Is there something the program is doing particularly well in terms of its processes for the assessment and improvement of student learning, including the closing of equity gaps, that might serve as a model for other programs? If yes, please explain. You may skip this question.**

   The Department is applauded for using the foundational course for the major, Math 264, as an opportunity to discuss careers paths through alumni participation.

Dean's signature: *Jenny McNulty* **Date:** December 14, 2021