



Date: February 21, 2020

To: John Stalvey, Interim Provost

From: John Petraitis, Interim Dean, College of Arts and Sciences

Cc: Mark Fitch, Professor; Chair, Department of Mathematics and Statistics
Sam Cook, Associate Professor
Debbie Narang, Professor
Rieken Venema, Professor

Re: AY20 Expedited Program Review Findings

Program/s in this review: Mathematics BA-BS

Specialized accrediting agency (if applicable): None

Campuses where the program is delivered: Anchorage

Members of the program review committee:

Mark Fitch, Professor; Chair, Department of Mathematics and Statistics
Sam Cook, Associate Professor
Debbie Narang, Professor
Rieken Venema, Professor

Centrality of Program Mission and Supporting Role

UAA's mission is to discover and disseminate knowledge through teaching, research, engagement and creative expression. UAA is committed to serving the higher education needs of the state, its communities and its diverse peoples. It is also committed to instruction at multiple academic levels, success of all students regardless of their higher education goals, and service to the diverse peoples and communities of the state. UAA's core themes are (1) Teaching and Learning, (2) Research, Scholarship and Creative Activity, (3) Student Success, (4) UAA Community, and (5) Public Square. UAA values international and intercultural education, diversity of experiences and perspectives, and the diversity of our unique location in Southcentral Alaska that comes from the Alaska Native peoples of this area.

The College of Arts and Sciences contributes to UAA's mission with a suite of programs that provide, among other things,

1. general education courses for undergraduates in CAS and other Colleges,
2. opportunities for undergraduates to pursue majors in the humanities, social sciences, natural sciences, and the arts, and
3. opportunities for faculty and students to pursue research and creative activities in CAS's academic disciplines,
4. graduate programs for advanced studies.

Given decreased enrollments across UAA and significant budget cuts to CAS, the challenge is to serve UAA's and CAS's missions with only 75% of the funds it had in 2018-2019. CAS's shrinking budget is especially challenging for programs that rely on state financial appropriations through CAS because the programs have a gap between (a) the total costs of everything the program does and needs, and (b) the tuition CAS receives to cover those costs. This describes most programs in CAS: most rely on state appropriations and CAS has 30% less than it had two years ago.

CAS's Department of Mathematics & Statistics contributes to CAS's and UAA's mission by providing the bulk of Tier 1 math courses at the 200-level (and, occasionally, some 100-level Tier 1 courses, too) for students seeking general education credits. The BA-BS in Mathematics gives majors the opportunity to study mathematics and statistics in depth.

Program Demand (including service to other programs), Efficiency, and Productivity

One measure of demand for the BA-BS in Mathematics is the number of incoming high school students who select the Math BA-BS as their major. Typically, that is around 8 students per year, putting it below the median (10) for CAS's baccalaureate programs in attracting freshmen. By a striking degree, very little of the students served by the Math Department in 2019 were actually Math majors: only 3% of the student credits by the Department were for Math majors, leaving 97% for students in other programs. This illustrates that the Department is largely a "service" department that contributes to the university as a whole, not to its majors in particular.

As to the Department's efficiency, when considering the Math/Statistics efficiency across its Tier 1 courses and for Math majors, the tuition CAS received to cover instructional costs was less than those costs in 2019, requiring state appropriations through CAS to cover the gap. Moreover, when considering all of the costs in the Department for all that faculty do (namely, teaching, research, and service), the Department operated at a deficit in 2019.

As to productivity, the BA-BS major averages 13 graduates per year, a number higher than the number of students per year who enter as Math majors.

Program Quality, Improvement and Student Success

The program faculty are unusually committed to student success and revising their Tier 1 and majors courses around innovative teaching techniques. The openness to innovation is exemplary.

Program Duplication / Distinctiveness

UAF also offers a BA-BS in Mathematics. Combined, the two programs produce about 20 graduates per year with 2/3rd of these graduates coming from UAA's program.

Commendations and Recommendations

The faculty are commended for collaborating productively with faculty in the Department of Quantitative Studies in UAA's Community and Technical College on shared responsibility for Tier 1 Math courses at UAA. They are also commended for their exemplary innovation in their teaching. The faculty also should be commended for the hard work they put into their expedited program review submission.

Decision

Continuation. The department had a budget deficit in 2019, largely caused by the move of many of the instructional responsibilities of Tier 1 Math from this department to the Department of Quantitative studies in CAS. However, retirements at the end of this year will naturally leave the department with the appropriate number of faculty for the Tier 1 and majors courses it will have.