UNIVERSITY of ALASKA SOUTHEAST
ALASKA COLLEGE OF EDUCATION
OFFICE OF THE DEAN

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Date: October 29, 2019
To: Karen Carey, Provost
From: Steve Atwater, Executive Dean
Re: Program Review for Math Education Programs

Background: On September 5, 2019 you notified the Academic and Student Affairs Committee that admission to the three Alaska College of Education Math Education Programs (K-5 Certificate, K-8 Certificate and M. Ed. in Mathematics Education) was suspended. Students enrolled in the three programs were notified of the admission suspension and encouraged to complete the program requirements.

The Mathematics Education Program at UAS began as an endorsement program approved in 2005. The first two courses were taught in the summer of 2006. The endorsement program was updated to a certificate program in the spring of 2007. In the spring of 2008, the certificate program was expanded with the addition of a M.Ed. in Mathematics Education. In the spring of 2011 the K-5 certificate option that leads to a State of Alaska endorsement in K-5 mathematics was approved. The K-5 Mathematics endorsement was approved by the State of Alaska Board of Education in the fall of 2011. Note that establishing the programs was tied to grant funds that supported program enrollment. After the grant funds ended, program enrollments declined.

Relevant Data: The data tables included with this document detail the enrollment and awards of the two programs. Without the support of grant funds, the Programs have failed to recruit a sufficient number of students and hence, the number of awards issued has been steadily decreasing with just two awards conferred in 2019.

Recommendation: Discontinue the three Math Education Programs.

Please let me know if you require further information to support this recommendation.

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Steve Atwater, Ph.D
Executive Dean
Alaska College of Education

UNIVERSITY of ALASKA SOUTHEAST

Mathematics Education Program
Alaska College of Education
Fifth Year Review
29 October, 2019

Table of contents

1.0 Program Profile

Introduction

The Mathematics Education program at UAS is the only advanced program in Mathematics Education in Alaska. It increases the number of middle school math teachers by providing certified teachers in Alaska an avenue to increase their understanding of mathematics content and pedagogy and qualifies them for a Middle School Math endorsement to be added to their existing Alaska State teaching certificate.

Candidates in this program can obtain an Institutional Recommendation (IR) upon completion of the K-5 certificate option, the K-8 certificate option, or the Master of Education in Mathematics Education. Teachers who complete the K-5 certificate option may submit their IR to the Alaska Department of Education and Early Development to add the K-5 endorsement to their teaching certificate. Teachers who complete the K-8 certificate option may add the Middle School Math endorsement to their teaching certificate. If a teacher completes the M.Ed. option either one or the other or both endorsements may be added to an existing Alaska State teaching certificate.

The Mathematics Education programs at UAS addresses the goals set forth in the University of Alaska's Strategic Pathways. It strengthens teachers' understanding of mathematics and how to teach it effectively and in doing so adds to the number of qualified middle school math teachers. Through the teaching of these better-qualified teachers more Alaska students likely will attend a UA college majoring in a STEM field, thereby increasing the number of scientists, mathematicians, engineers, technicians and other innovators working in the state. This contributes to both Goal 1 and Goal 3 of Strategic Pathways.

Better qualified middle school math teachers may also increase the number of high school graduates who are better prepared for post-high school programs, including college. This likely will result in an increase in the number of skilled workers in Alaska. This is a major part of Goal 2 of Strategic Pathways. There are many vacant middle school math teaching positions, so there are additional opportunities for graduates from this program to find a rewarding teaching position which contributes to Goal 4 of Strategic Pathways.

In addition to addressing the goals of the UA Strategic Pathways, this program provides an opportunity for Alaskans to earn an advanced degree from their homes, encouraging rural teachers to remain in their communities and helping in the retention of qualified math teachers, a strong need in Alaska.

1.1. Degree, certificates, mission and goals

Mathematics Education

Masters of Education

The M.Ed. in Mathematics Education is designed to provide content and pedagogy appropriate for the teaching of mathematics with options for increasing the teacher's understanding of content area literacy, the inclusion of students with special needs and utilizing technology to teach mathematics. The mathematics content is designed to strengthen understanding of the mathematics taught in the K-8 curriculum. Candidates must prepare an exit portfolio, demonstrating competency in the nine outcomes of the Alaska College of Education (i.e., philosophy, development, diversity, content, student learning, learning environment, professionalism, technology). Program assessment plans and student learning outcomes are posted at: www.uas.alaska.edu/provost/assessment/program-assessment1.html

Goals

The Master of Education Program in Mathematics Education is an advanced degree program designed for certified K-8 teachers to allow them to increase their understanding of mathematics pedagogy, strengthen their knowledge base in the mathematics content they teach and become mathematics education leaders and specialists.

Goal 1: to create a degree that will effectively model appropriate mathematical teaching, learning, assessment and evaluation practices for teachers to (1) experience as a "student learner;" (2) have the opportunity to understand and integrate "modeled" practices into their own teaching; (3) learn to further analyze and evaluate mathematical teaching and learning; and (4) develop a plan for personal professional development to become a more effective mathematics teacher.

Goal 2: to help practicing teachers become dynamic and knowledgeable leaders in the field of mathematics for their schools, their districts and the state of Alaska.

Goal 3: to help practicing teachers further their understanding of mathematics both in depth and breadth of mathematical knowledge.

Goal 4: to help practicing teachers become better prepared to teach the full spectrum of K-8 3mathematics.

Goal 5: to create a program that leads to an M.Ed. with an endorsement in K-8 mathematics education.

Goal 6: to help teachers of middle school mathematics attain their goal of becoming a highly qualified teacher of mathematics.

Courses in M.Ed. Option:

A. Mathematics education courses required (all courses 3 credits):

ED/EDMA S608 Mathematical Problem Solving: An Overview for K-8 Teachers
ED/EDMA S614 Numeration and Operations: Math Content and Pedagogy for K-8 Teachers
ED/EDMA S654 Algebra and Functions: Content and Pedagogy for K-8 Teachers
ED/EDMA S655 Geometry and Measurement: Content and Pedagogy for K-8 Teachers
ED/EDMA S656 Data Analysis, Statistics, and Probability: Content and Pedagogy for K-8 Teachers
ED/EDMA S657 Concepts of Calculus and Trigonometry: Content and Pedagogy for K-8 Teachers
ED/EDMA S658 Technology for Teaching and Learning Mathematics

B. Additional education courses required (all courses 3 credits):

ED S626 Classroom Research
EDET S628 Technology in Instructional Design
EDET S668 Educational Technology Leadership
ED/EDMA S698 Masters Portfolio

Mathematics Education Graduate Certificates:

Mathematics Education K-5

The Mathematics Education K-5 Certificate is a culturally responsive program designed to provide K-5 teachers with a deeper understanding of mathematical content and pedagogy. This program emphasizes nontraditional, hands-on methods and approaches providing both rigor and pedagogy. It is designed to help teachers develop a deeper understanding of the mathematics they teach, build their mathematical knowledge, and develop the habits of mind of a mathematical thinker and problem solver. Topics addressed include: problem solving; numeration and operations; algebra and functions; geometry and measurement; data analysis; statistics and probability; and the use of technology for teaching and learning mathematics. Problem Solving, Reasoning, Communication, and Connections as emphasized in state and national standards will be incorporated in all courses in the program. It is expected that those enrolled in the program will complete it in 18 months.

Goals

Goal 1: to create an endorsement that will effectively model appropriate mathematical teaching, learning, assessment and evaluation practices for teachers to (1) experience as a "student learner" (2) have the opportunity to understand and integrate "modeled" practices into their own teaching; (3) learn to further analyze and evaluate mathematical teaching and learning; and (4) develop a plan for personal professional development to become a more effective mathematics teacher

Goal 2: for practicing teachers to become dynamic and knowledgeable leaders in the field of mathematics for their school building, their school district and the state of Alaska

Goal 3: for practicing teachers to further their understanding of mathematics both in depth and breadth of mathematical knowledge

Goal 4: for practicing teachers to become better prepared to teach the K-5 mathematics

Goal 5: to create an endorsement program that may lead to an endorsement in K-5 mathematics

Courses in K-5 Option:

Mathematics education courses required (all courses 3 credits):

ED/EDMA S608 Mathematical Problem Solving: An Overview for K-8 Teachers
ED/EDMA S614 Numeration and Operations: Math Content and Pedagogy for K-8 Teachers
ED/EDMA S654 Algebra and Functions: Content and Pedagogy for K-8 Teachers
ED/EDMA S655 Geometry and Measurement: Content and Pedagogy for K-8 Teachers
ED/EDMA S656 Data Analysis, Statistics, and Probability: Content and Pedagogy for K-8 Teachers
ED/EDMA S658 Technology for Teaching and Learning Mathematics

Mathematics Education Graduate Certificates:

Mathematics Education K-8

The Mathematics Education (K-8) Certificate is a culturally responsive program designed to provide K-8 teachers with a deeper understanding of mathematical content and pedagogy. The courses emphasize non-traditional, hands-on methods and approaches providing both rigor and pedagogy. Topics addressed include: problem solving; numeration and operations; algebra and functions; geometry and measurement; data analysis; statistics and probability; and calculus and trigonometry. ED S608 and ED S614 are offered on Juneau campus during summer session. Remaining courses in the program may be offered by e-Learning. It is expected that those enrolled in the program will complete it in 18–24 months.
www.uas.alaska.edu/education/programs/index.html

Goals

Goal 1: to create an endorsement that will effectively model appropriate mathematical teaching, learning, assessment and evaluation practices for teachers to (1) experience as a "student learner" (2) have the opportunity to understand and integrate "modeled" practices into their own teaching; (3) learn to further analyze and evaluate mathematical teaching and learning; and (4) develop a plan for personal professional development to become a more effective mathematics teacher

Goal 2: for practicing teachers to become dynamic and knowledgeable leaders in the field of mathematics for their school building, their school district and the state of Alaska

Goal 3: for practicing teachers to further their understanding of mathematics both in depth and breadth of mathematical knowledge

Goal 4: for practicing teachers to become better prepared to teach the full spectrum of K-8 mathematics

Goal 5: to create a program that leads to an endorsement in K-8 mathematics education

Courses in K-8 Option:

Mathematics education courses required (all courses 3 credits):

ED/EDMA S608 Mathematical Problem Solving: An Overview for K-8 Teachers
ED/EDMA S614 Numeration and Operations: Math Content and Pedagogy for K-8 Teachers
ED/EDMA S654 Algebra and Functions: Content and Pedagogy for K-8 Teachers
ED/EDMA S655 Geometry and Measurement: Content and Pedagogy for K-8 Teachers
ED/EDMA S656 Data Analysis, Statistics, and Probability: Content and Pedagogy for K-8 Teachers
ED/EDMA S657 Concepts of Calculus and Trigonometry: Content and Pedagogy for K-8 Teachers
ED/EDMA S658 Technology for Teaching and Learning Mathematics

1.2. History of Program

The Mathematics Education Program at UAS began as an endorsement program approved in 2005. The first two courses were taught in the summer of 2006. The endorsement program was updated to a certificate program in the spring of 2007. In the spring of 2008, the certificate program was expanded with the addition of a M.Ed. in Mathematics Education. In the spring of 2011 the K-5 certificate option that leads to a State of Alaska endorsement in K-5 mathematics was approved. The K-5 Mathematics endorsement was approved by the State of Alaska Board of Education in the fall of 2011.

The Mathematics Education Program at UAS has benefited from the awarding of three competitive Subgrants to Eligible Partnerships (SEP) grants awarded by the State of Alaska Department of Education and Early Development. The first SEP grant was awarded to UAS in the spring of 2007. This grant was awarded for three years. The second SEP grant was awarded in 2010 to the MatSu School District, with UAS as a partner. The second grant was awarded for three years. The third SEP grant was awarded in 2013 to the Craig City School District for the Small Schools Math Network, with UAS as a partner. It, too, was awarded for three years. These grants have allowed many teachers in Alaska to obtain one or more of the certificates or M.Ed. degree offered by the program.

Since the first students took the first courses in the K-8 certificate option in the summer of 2006, over 250 students have taken over 1600 graduate courses at UAS. Most have completed certificates or the M.Ed.

1.3. Summary of strengths and deficiencies

Strengths

1. The only master's degree program in Mathematics Education in Alaska.
2. Addresses UA System Goal 2 to develop new and relevant programs that expand the range of degree programs and opportunities to deliver graduate training through distance delivery.
3. Responds to the goal of the UAS strategic plan goal of assisting current teacher education practitioners to make progress toward their professional development goals.
4. Responds to the goal of the UAS strategic plan goal to respond to the demands of the state by providing teachers with opportunities to obtain graduate degrees in high-need areas.
5. Designed to help meet the demand for mathematics education leaders in the state of Alaska.
6. Designed to help meet the need for highly qualified middle school math teachers in Alaska.
7. Designed to help teachers increase their understanding of mathematics pedagogy.
8. Designed to help teachers strengthen their understanding of mathematics content.
9. Designed to help teachers become mathematics education leaders and specialists.
10. Designed to help teachers connect mathematics to local communities and cultures.
11. Designed to help teachers apply mathematics to real-life problem situations.
12. Designed to help impact school students understanding of mathematics through its graduates.

Deficiencies

1. Program enrollment has been highly dependent upon candidate scholarships provided by state and federal grants.

1.4. Program consistency with institutional mission and goals

Relevance to the University Mission

This program helps the UA system meet its goal and objective of responding to state workforce needs for highly qualified mathematics teachers. It addresses the objective of UA System Goal 2 to develop new and relevant programs that expand the range of degree programs and opportunities to deliver graduate training through distance delivery. It helps UAS meet the goal in its strategic plan of assisting current Alaska teachers make progress toward their professional development goals and to respond to the demands of the state and nation by providing teachers with opportunities to obtain graduate degrees in high-need areas.

1.5. Interactions with other programs on campus

The M. Ed. option of the Mathematics Education program includes graduate courses in Educational Research and Technology Education, and with possible elective courses in Reading and Special Education.

Candidates in the M.Ed. Mathematics Education must take the following graduate education courses:
Additional education courses required:
ED S626 Classroom Research (Teacher Research),
EDET S628 Technology in Instructional Design,
EDET S668 Educational Technology Leadership, and complete a professional portfolio in
EDMA S698 Masters Portfolio.

Candidates in the M.Ed. Mathematics Education must take one elective course and may choose from following graduate education courses:
ED S616 Math Methods in the K-8 Classroom,
EDRE S679 Reading and Literacy in the Content Areas, or
EDSE S682 Inclusive Education for Students with Disabilities.

1.6. Transferability to/from programs at other UA institutions

The Mathematics Education program is the only master's level program in Mathematics Education in Alaska. Therefore the content courses in this program are rarely used in other programs. Some of the courses have been taken as elective courses in graduate programs in Special Education at UAS and UAA.
The original endorsement program was modeled on a program that began at UAA, but that program existed for only two years and the courses in that program have not been offered since the UAS program has existed. UAF does not offer graduate courses in mathematics education. Therefore, other than elective coursework, no courses are being offered at other UA institutions that would transfer to this program.

1.7. Statewide implications or mission

With its emphasis on and required lessons built around place-based problems, the Mathematics Education Program is a culturally responsive program designed to provide Alaska's K-8 teachers with a deeper understanding of mathematical content and pedagogy. The courses in the program emphasize non-traditional, hands-on methods and approaches, but also provide rigorous instruction in pedagogy and mathematics content. The goals and objectives are aligned to the Content and Performance Standards for Alaska Students, the Alaska Department of Education and Early Development Grade Level Expectations, and the Alaska Standards for Culturally Responsive Schools.

The Mathematics Education Program supports the educational mission of the University of Alaska and the Alaska College of Education by providing K-8 teachers in Alaska the content and pedagogy to become leaders in the teaching of mathematics. It advances and disseminates knowledge through teaching and research, addresses the state need for highly qualified mathematics teachers, and emphasizes the application of mathematics to the cultures and communities of Alaska.

The Mathematics Education Program meets the needs of the state by providing a course of study that is designed to: deepen the mathematical understanding of certified teachers of Alaska; strengthen pedagogical practices related to the teaching of mathematics; help fill the state of Alaska's need for highly qualified mathematics teachers to meet federal No Child Left Behind guidelines; and assist teachers in earning the designation of highly qualified teachers of mathematics.

2.0 Faculty Profile

2.1 Headcount an instructional full-time equivalent (FTE) for full and adjunct faculty for each of the past five years. Source: UASIR

Headcount full-time and adjunct faculty.

Faculty Headcount	2015	2016	2017	2018	2019
Tenure	1	2	2	2	1
Tenure Track	1	1			1
Adjunct				1	
Total	2	3	2	3	2

There is one full-time faculty member devoted to the program.

Demographics, T/TT Only	2015	2016	2017	2018	2019
% Female	50%	33%	50%	0%	50%
% Male	50%	67%	50%	100%	50%
% International					50%
% White	100%	100%	100%	100%	50%

2.2 A profile of unit faculty with degrees, areas of specialization, rank and tenure status, years of experience, gender and minority composition. Sources: UASIR and program internal documents.

Profile of unit faculty with degrees, areas of specialization, rank and tenure status

AY(s)	Faculty Member	Highest Degree & Institution	Tenure Track Y/N	Assignment/ Rank
2015 – 2019	Fredenberg, Virgil G	Doctorate, Montana State University	Y	Professor
2015 – 2017	Graham, Mary	Doctorate, Mississippi State University	Y	Associate Professor
2018 – 2019	Chen, Ye	Doctorate, Syracuse University	Y	Assistant Professor

2.3 A program profile of the productivity of the faculty, including teaching, service, research and creative activities, and administrative responsibilities for each of the past five years. Sources: UASIR and program internal documents

The following is the requested information for Dr. Virgil Fredenberg, the Mathematics Education Program Coordinator and principal teacher. Note that Dr. Fredenberg also teaches two courses for the UAS Mathematics Department.

Teaching Activity AY 2014-2015	
Course #	Title
Math 205	Mathematics for Elementary School Teachers I
Math 206	Mathematics for Elementary School Teachers II

ED 427	Teaching Math in the K-8 Curriculum
EDMA 608	Mathematical Problem Solving for K-8 Teachers
EDMA 614	Numeration and Operations: Mathematics for K-8 Teachers
EDMA 654	Algebra and Functions: Content and Pedagogy for K-8 Teachers
EDMA 655	Geometry and Measurement: Content and Pedagogy for K-8 Teachers
EDMA 656	Data Analysis, Statistics, and Probability: Content and Pedagogy for K-8 Teachers
EDMA 657	Calculus and Trigonometry: Content and Pedagogy for K-8 Teachers
EDMA 698	Master's Research Project or Portfolio
EDET 698	Master's Portfolio: M. ED Educational Technology
Teaching Activity AY 2015-2016	
Course #	Title
MATH211	Mathematics for Elementary School Teachers I
MATH212	Mathematics for Elementary School Teachers II
ED427	Teaching Math in the K-8 Curriculum
EDMA 614	Numeration and Operations: Mathematics for K-8 Teachers
EDMA 654	Algebra and Functions: Content and Pedagogy for K-8 Teachers
EDMA 655	Geometry and Measurement: Content and Pedagogy for K-8 Teachers
EDMA 656	Data Analysis, Statistics, and Probability: Content and Pedagogy for K-8 Teachers
EDMA 657	Calculus and Trigonometry: Content and Pedagogy for K-8 Teachers
EDMA 698	Master's Research Project or Portfolio
EDET 698	Master's Research Project or Portfolio
Teaching Activity AY 2016-2017	
Course #	Title
MATH211	Mathematics for Elementary School Teachers I
MATH212	Mathematics for Elementary School Teachers II
ED427	Teaching Math in the K-8 Curriculum
ED616	Math Methods in the K-8 Classroom
EDMA 608	Mathematical Problem Solving for K-8 Teachers
EDMA 614	Numeration and Operations: Mathematics for K-8 Teachers
EDMA 657	Calculus and Trigonometry: Content and Pedagogy for K-8 Teachers
EDMA 693	ST: Integrating STEM into the Curriculum
EDMA 698	Master's Research Project or Portfolio
EDET 698	Master's Research Project or Portfolio
Teaching Activity AY 2017-2018	
Course #	Title
MATH211	Mathematics for Elementary School Teachers I
MATH212	Mathematics for Elementary School Teachers II
ED427	Teaching Math in the K-8 Curriculum
ED616	Math Methods in the K-8 Classroom
EDMA 608	Mathematical Problem Solving for K-8 Teachers
EDMA 655	Geometry and Measurement: Content and Pedagogy for K-8 Teachers
EDMA 657	Calculus and Trigonometry: Content and Pedagogy for K-8 Teachers
EDMA 698	Master's Research Project or Portfolio
EDET 636	The Impact of Technology on Student Learning
EDET 637	Differentiating Instruction Through Technology
EDET 677	Mechanical Applications of Technology
EDET 678	Emerging Technologies
EDET 694	Practicum Virtual Teaching and Learning
EDET 698	Master's Research Project or Portfolio
Teaching Activity AY 2018-2019	
Course #	Title
MATH211	Mathematics for Elementary School Teachers I

MATH212	Mathematics for Elementary School Teachers II
ED427	Teaching Math in the K-8 Curriculum
ED616	Math Methods in the K-8 Classroom
EDMA 608	Mathematical Problem Solving for K-8 Teachers
EDMA 614	Numeration and Operations: Mathematics for K-8 Teachers
EDMA 654	Algebra and Functions: Content and Pedagogy for K-8 Teachers
EDMA 655	Geometry and Measurement: Content and Pedagogy for K-8 Teachers
EDMA 698	Master's Research Project or Portfolio
EDET 637	Differentiating Instruction Through Technology
EDET 677	Mechanical Applications of Technology
EDET 698	Master's Research Project or Portfolio

Research and Creative Activity AY 2014-2015
Partner Contact for UAS on the Southeast Alaska Small Schools Math Network grant, Title II-B, Math and Science Partnership Competitive Grant in partnership with Craig City School District, Southeast Island School District, and Hydaburg School District through the Alaska Department of Education and Early Development
Co-author, Impact of an Open Online Course on the Connectivist Behaviors of Alaska Teachers, Australasian Journal of Educational Technology.
Presented findings of online learning, "LiveText in a Connected Distributed Learning Environment", LiveText Assessment & Collaboration Conference, July 2014, Chicago, Illinois. http://www.slideshare.net/drlee66/livetext-2014
Research and Creative Activity AY 2015-2016
Partner Contact for UAS on the Southeast Alaska Small Schools Math Network grant, Title II-B, Math and Science Partnership Competitive Grant in partnership with Craig City School District, Southeast Island School District, and Hydaburg School District through the Alaska Department of Education and Early Development
Presentation, "LEDs and Power Flow Make Math Real", 2015 Alaska Math and Science Conference Program, Sitka, Alaska, October 23 – 25, 2015
Research and Creative Activity AY 2016-2017
Partner Contact for UAS on the Southeast Alaska Small Schools Math Network grant, Title II-B, Math and Science Partnership Competitive Grant in partnership with Craig City School District, Southeast Island School District, and Hydaburg School District through the Alaska Department of Education and Early Development
UAS Co-PI for joint National Science Foundation Noyce capacity building grant. Worked with UAS PI and UAF PI and STEM education faculty across the three universities in the University of Alaska
Research and Creative Activity AY 2017-2018
UAS Co-PI for joint National Science Foundation Noyce capacity building grant, completed and submitted the annual and final program report.
Research and Creative Activity AY 2018-2019
UAS Co-PI for joint National Science Foundation Noyce capacity building grant, completed and submitted the annual and final program report.
UAS Representative on the Alaska Council of Teachers of Mathematics Board of Directors planning for Cross Content Conference, October 2019

Service AY 2014-15
Mathematics Education Program Coordinator
Faculty Senate Past-President

Faculty representative for UAS on the Statewide Academic Council
Faculty representative for UAS on the Faculty Alliance
Faculty Alliance representative on System Governance Council
Faculty Alliance representative on the Student Services Council
UAS representative on the Alaska Council of Teachers of Mathematics (ACTM) board of directors.
Service AY 2015-16
Mathematics Education Program Coordinator
Member of UAS Institutional Review Board
Member of UAS Peer Evaluation Committee
Member of the Program Committee for the Society for Information Technology and Teacher Education International Conference for the 2016 SITE Conference, Savannah, GA, United States, March 21-26, 2016, reviewed conference submissions.
UAS representative on the Alaska Council of Teachers of Mathematics (ACTM) board of directors.
Service AY 2016-17
Mathematics Education Program Coordinator
Member of the Program Committee for the Society for Information Technology and Teacher Education International Conference for the 2016 SITE Conference, Savannah, GA, United States, March 21-26, 2017, reviewed conference submissions.
UAS representative on the Alaska Council of Teachers of Mathematics (ACTM) board of directors.
Member of the UA COE Steering Committee representing UAS
Member of the UAS Graduate Committee
Member of the UAS Master Plan Implementation Committee
Service AY 2017-18
UAS Co-PI for joint National Science Foundation Noyce capacity building grant attended grant committee meetings and worked with UAS PI and UAF PI and STEM education faculty across the three universities in the University of Alaska
AKCOE representative on the AKCOE Steering Committee
UAS representative on the Alaska Council of Teachers of Mathematics (ACTM) board of directors.
Member of the Board of Directors of the Alaska Council of Teachers of Mathematics
AKCOE representative on the UAS Graduate Committee
AKCOE representative on the UAS Regional Teaching, Learning, and Technology Roundtable
AKCOE representative on the UAS Juneau Teaching, Learning, and Technology Roundtable
AKCOE representative on the UAS Blackboard Implementation Working Group
AKCOE representative on the UAS Master Plan Implementation Committee
Service AY 2018-19
UAS Co-PI for joint National Science Foundation Noyce capacity building grant attended grant committee meetings and worked with UAS PI and UAF PI and STEM education faculty across the three universities in the University of Alaska
UAS Peer Review committee
AKCOE representative on the AKCOE Teacher Education Council
UAS representative on the Alaska Council of Teachers of Mathematics (ACTM) board of directors.
AKCOE representative on the UAS Graduate Committee
AKCOE representative on the UAS Regional Teaching, Learning, and Technology Roundtable
AKCOE representative on the UAS Juneau Teaching, Learning, and Technology Roundtable
AKCOE representative on the UAS Blackboard Implementation Working Group
AKCOE representative on the UAS Master Plan Implementation Committee

2.4 Average student credit hours (SCH) per full-time equivalent (FTE) faculty per academic year for each of the past five years. Source: UASIR

Student Faculty Ratio

Primary Courses	2015	2016	2017	2018	2019
Faculty Teaching FTE	1.6	1.5	0.6	0.8	0.9
Student FTE	13.1	12.0	4.1	3.3	4.9
Student Faculty Ratio	8.1	8.0	7.1	4.3	5.3

All Courses	2015	2016	2017	2018	2019
Faculty Teaching FTE	3.1	4.0	2.6	2.0	2.2
Student FTE	32.5	41.7	34.3	14.3	17.5
Student Faculty Ratio	10.4	10.5	13.0	7.1	8.1

2.5 Comparison of student credit hours (SCH) per full-time equivalent (FTE) faculty for the program with similar programs at peer institutions, as comparative data become available. Similar programs and peer institutions may be suggested by the faculty of the program under review, the dean of the college, and/or the Provost. Source: UASIR

No similar programs exist in the UA system.

2.6 Average class size by full-time and adjunct faculty. Source: UASIR

Faculty Courses, Headcount

Primary Courses	2015	2016	2017	2018	2019
Courses	15	13	6	8	8
Enrolled Headcount	105	96	33	26	39
Student Credit Hours	315	288	99	78	117
Average Headcount	7	7	6	3	5

All Courses	2015	2016	2017	2018	2019
Courses	29	36	25	20	20
Enrolled Headcount	260	329	274	114	140
Student Credit Hours	780	1001	822	342	420
Average Headcount	9	9	11	6	7

3.0 Student Profile

3.1 Student credit hours generated for each of the past five years. Source: UASIR

Student credit hours generated for each of the past five years.

Primary Courses	2015	2016	2017	2018	2019
Student Credit Hours	315	288	99	78	117

All Courses	2015	2016	2017	2018	2019
Student Credit Hours	780	1001	822	342	420

3.2 Special admission standards or other measures of selecting students, if applicable. Source: Program internal documents

Admission procedures for the Mathematics Education Program

1. A completed graduate application and $60 processing fee.
2. Official academic transcript indicating baccalaureate degree and a GPA of 3.0
3. Two (2) recommendations written by former or current professors, employers, or supervisors who are familiar with your work and performance. Each recommendation must be submitted using the School of Education Letter of Recommendation Form.
4. A Statement of Professional Objectives per these instructions.
5. A copy of a current teaching or administrative certificate.

3.3 Profile of program majors. Source: UASIR

Program Majors

Mathematics Education	2015	2016	2017	2018	2019	5 yr Avg	5 yr Change
GLI, Mathematics Education	10	7	3	2	2	5	-80%
MEd, Mathematics Education	31	24	14	5	3	15	-90%
Total	41	31	17	7	5	20	-88%

Profile of Majors

Demographics	2015	2016	2017	2018	2019	5 yr Avg
% Female	85%	84%	88%	100%	0%	82%
%Male	15%	16%	12%	0%	100%	18%
% American Indian or Alaska Native	12%	19%	24%	14%	20%	17%
% Native Hawaiian of Other Pacific Islander	2%	3%			20%	5%
% Asian	2%	3%				1%
% Black or African American						
% White	73%	58%	65%	86%	60%	67%
% Unknown	10%	16%	12%			8%

Origin	2015	2016	2017	2018	2019	5 yr Avg
% Southeast Alaska	7%	16%	18%	29%	0%	13%
% Anchorage	12%	7%	18%	14%	20%	12%
% Fairbanks	2%	3%	0%	14%	0%	3%
% Other Alaska	71%	68%	65%	43%	60%	66%
% Out of State	7%	7%	0%	0%	20%	6%

Clearly because the Mathematics Education program is delivered online, it is one of the few avenues accessible to all Alaskan teachers as evidenced by the large percentage of its students being outside the main population centers.

3.4 Annual number of graduates by completion level (certificate, diploma, degree) for each of the past five years. Source: UASIR

Degrees and Certificates

Mathematics Education	2015	2016	2017	2018	2019	5 yr Avg	5 yr Change
GLI, Mathematics Education	12	9	7	3	1	6	-92%
MEd, Mathematics Education	11	9	7	3	1	6	-91%
Total	23	18	14	6	2	13	-91%

Profile of Graduates

Demographics	2015	2016	2017	2018	2019	5 yr Avg
% Female	91%	83%	79%	100%	0%	84%
%Male	9%	17%	21%	0%	100%	16%
% American Indian or Alaska Native	17%	22%	14%	33%		19%
% Native Hawaiian of Other Pacific Islander		11%				2%
% Asian		6%				1%
% Black or African American						
% White	74%	56%	64%	67%	100%	67%
% Unknown	9%	6%	21%			7%

Origin	2015	2016	2017	2018	2019	5 yr Avg
% Southeast Alaska	9%	22%	29%	33%		19%
% Anchorage	22%		29%			10%
% Fairbanks		6%		33%		8%
% Other Alaska	48%	44%	36%	33%	100%	44%
% Out of State	13%	11%				5%

Completion

5 year average of majors: 20
5 year average of graduates: 13
Completion Rate: 65%

Clearly because the Mathematics Education program is delivered online, it is one of the few avenues accessible to all Alaskan teachers as evidenced by the large percentage of its students being outside the main population centers.

4.0 Program Support

4.1 Adequacy of library holdings. Source: Egan Library Reports.

The courses in the Mathematics Education program are all distance courses taught online. The online resources of the Egan Library have been adequate for these courses.

4.2 Adequacy of facilities, technology, laboratory and other equipment, including plans for equipment maintenance and replacement. Sources: Program internal documents and peer data when available.

The courses in the Mathematics Education program are all distance courses taught online. The UAS technology facilities and resources have made the teaching of these courses possible. Without the quality of these facilities, it would not be possible to offer the courses.

4.3 Adequacy of professional development funds. Sources: Program internal documents and peer data when available

The SOE has been supportive where possible for professional development for the faculty who teach/taught courses in the Mathematics Education program. Each faculty member at UAS has $850.00 yearly in professional development funds. The Dean of the SOE has also made additional funds available in support of professional development when possible. The UAS Provost has also provided support for professional development. Through his office, UAS faculty members may apply for Wilson Fund monies to attend professional development opportunities while present at conferences.

4.4 Adequacy of staff/student support. Sources: Program internal documents and peer data when available

There are two full time program assistants in the UAS School of Education. The Mathematics Education program shares a program assistant with Special Education, and the MAT programs.

4.5 Adequacy of budget. Sources: Program internal documents and peer data when available

The School of Education has a centralized budget administered by the Dean of Education and Graduate Studies. The budget has been adequate to meet the needs of the Mathematics Education program.

4.6 Other

5.0 Qualitative Information

5.1 Special departmental characteristics, including, for example, unique features, benchmarking with other programs and program simulations. Sources: Program internal documents and materials from other higher education reports.

5.2 Programs with advisory committees should provide a list of members of the advisory committee, the business/industry each member represents, and results of committee activities concerning curriculum, equipment, and faculty. Sources: Program internal documents

5.3 Innovations in pedagogy, professional development, application of technology, etc. Sources: Program internal documents

The Mathematics Education program has been involved in many innovations and applications of technology at UAS. The first MOOC in the state of Alaska was a course cross referenced with EDMA 658 Technology for Teaching and Learning Mathematics. The primary faculty member teaching the content courses the program has incorporated a Promethean board into online instruction. This integrates the technological capabilities of an interactive whiteboard with the online course structure of Blackboard Collaborate, and could lead to blended courses at the university level.

5.4 Comment from program advisory committees for those programs that have them. Sources: Program internal documents.

5.5 Other