Mathematical Sciences LEADS 2025

Strategic Plan Draft September 2019

The Department of Mathematical Sciences provides core education in mathematics and statistics that prepares graduate and undergraduate students to be knowledgeable and responsible citizens of the world. It does this by conducting research, scholarship, and teaching, including teaching service courses for other programs, to fulfill the land grant mission of the university.

Core values

The core values of Mathematical Sciences are clarity and precision of thought and expression, persistence and creativity in problem solving, sharing ideas, and striving for excellence.

Goal 1. Enhance student success and social mobility

Objective 1.1 Diversify, optimize, and increase system-wide enrollment.

- Create new concentrations in the major.
- Visit high schools throughout region for outreach and recruitment.
- Investigate online classes in select early level classes.
- Modernize our webpages.

Objective 1.2 Increase student learning, retention, and degree attainment.

- Have coordination in courses with multiple sections or taught in multiple locations.
- Increase communication with DACC
- Supplemental instruction in first year learning.
- Coordinated labs in first year learning.
- Increase scholarships.
- Make efficiencies with prerequisites met outside our department.

Objective 1.3 Develop a culture of ``Aggie Life'' reflected by high student engagement through participation and learning in co-curricular experiences.

- Create a chapter of AWM and join Math Alliance.
- Run Putnam exam.
- Create seminars specifically for graduate students and advanced undergraduates.
- Increase departmental funding of activities for students that are fun and educational.
- Use Peer Learning Assistants in the first-year learning experience.

Objective 1.4 Strengthen career pathways through service-learning, experiential learning and research engagement.

- Create a database of former students, particularly educators.
- Create concentrations in our major for in-demand areas such as secondary education.
- Support university efforts in emerging areas.
- Introduce new awards for undergraduates and graduates.

Objective 1.5 Elevate graduate education

- Initiate new graduate fellowships.
- Modernize our webpages.
- Increase the number of our strong undergraduates that go on to our graduate program.
- Host international conferences to attract strong graduate students.
- Maintain high ranking among math departments (\# 117 nationally, US News 2018).
- Collaborate with and support emerging disciplines.
- Develop a database of former students, particularly educators now at universities.
- Introduce chapters of AWM and Math Alliance.
- Attract better students.

Objective 1.6 Offer a portfolio of engaging, relevant, and accessible academic programs that are tightly integrated with efforts related to research, service, and outreach.

- Introduce a new concentration in the major for secondary math education.
- Introduce new concentrations to support emerging areas and in-demand areas.
- Revise several courses to reflect changing needs.

Goal 2. Elevate research and creativity

Objective 2.1 Facilitate the convergence of research and creative activity to address local and global challenges, integrated with undergraduate and graduate education.

- Support interdisciplinary efforts in emerging areas.
- Increase applications for math education grants.

Objective 2.2 Intentionally grow humanities, social sciences and creative arts to achieve comprehensive excellence in research and creative activity.

- Partner with Philosophy on a new concentration in our major.
- Partner with Philosophy on joint colloquia.

Objective 2.4 Amplify impact of research on society and the economy and promote international collaboration by accelerating technology and knowledge transfer.

- Continue high rate of publication.
- Continue high rate of participation in international conferences.
- Continue high rate of international collaboration.
- Hold an international conference in the department.

Goal 3. Amplify extension and outreach

Objective 3.1 Be a leader in place-based innovation and in economic and community development.

- Develop a database \& listserve of regional educators that are former students.

Objective 3.2 Develop and implement innovative and culturally responsive PK-20 outreach, professional development, and continuing education programs that support social mobility.

- Participate in education grants for continuing education for K-12 math teachers.
- Increase communication between our department and regional math educators.

Objective 3.3 Improve PK-20 Science, Technology, Engineering and Math (STEM) education.

- Increase application for math education grants.
- Introduce concentration for secondary math education.
- Help coordinate with local high schools for dual credit courses (timing, labs, etc.)
- Continue courses for elementary education.
- Continue research efforts in math education.

Objective 3.4 Strengthen and elevate public-private engagement.

- Better advertise our graduating undergraduates and graduates to help local placement.
- Have a database and listserve for former students to help placement of graduates.

Objective 3.5 Amplify Cooperative Extension and outreach programs and services to increase support for business, individuals, and communities.

- Increase visits to regional high schools for both outreach and recruiting.
- Serve as a resource for a network of regional math educators.

Goal 4. Build a robust university system

Objective 4.1 Be a recognized leader in valuing the inclusion of diverse participants and in recognizing diversity as an asset among minority-serving, land-grant, and space-grant institutions.

- Maintain a minority representation at a higher level than national average at the undergraduate, graduate, staff, and faculty level.
- Create a chapter of AWM and join Math Alliance.
- Targeted scholarships at the undergraduate and graduate level.

Objective 4.2 Cultivate faculty and staff excellence.

- Give everyone a voice and opportunity in the direction of the department.
- Apply for internal and external awards.
- Increase faculty travel expenditures.

Objective 4.3 Establish operational excellence through a metric-driven, service-oriented approach.

- Realign the department budget with current needs and objectives.

Objective 4.4 Identify grand challenges and mobilize the University system to execute effective solutions.

- Utilize our department's resources and leverage them with other parts of the university to assist in the crisis in education in the state.
- Support university initiatives in emerging areas.

Objective 4.5 Establish strategic alignment with the NMSU Foundation to raise, manage, and steward private resources in support of the NMSU system.

- Establish a listserve for former students to increase the number of foundation gifts.
- Develop ways to properly utilize foundation gifts.
- Have a department newsletter produced twice a year.

AY 2020-2021 Activities

Goal 1

Objective 1.1

- Identify new directions and create concentrations in major.
- Recruit in high schools.
- Begin to update our webpages.

Objective 1.2

- Coordination of courses and labs taught in multiple sections within the department.
- Initiate discussion about content of math courses taught in other departments.
- Enhance the first-year learning experience.

Objective 1.3

- Initiate discussions for chapters of AWM and Math Alliance.
- Increase departmental support for activities and clubs involving students and faculty.

Objective 1.4

- Begin to create database of former students, especially those that are educators.
- Explore undergraduate curriculum in terms of supporting emerging areas and in-demand areas.

Objective 1.5

- Discuss how to implement new graduate fellowships.
- Begin to modernize our webpages.

Objective 1.6

- Concentrations in secondary math education and foundations.

Goal 2

Objective 2.1

- Implement new concentration in the major in math education.
- Consider undergraduate curriculum in terms of supporting emerging areas.

Objective 2.2

- Create new concentration in the major to partner with Philosophy.

Objective 2.3

- Begin to develop a database of former students that are educators.

Objective 2.4

- Increase expenditures in the department for faculty travel.

Goal 3

Objective 3.1

- Develop database of former students that are educators in region.

Objective 3.2

- Participate in grants for continuing graduate education for public school educators.
- Visit high schools in the region.
- Increase contact with educators in high schools in region.

Objective 3.3

- Introduce concentration in secondary math education.

Objective 3.4

- Begin database of former students.

Objective 3.5

- Visit high schools in region.
- Begin to create network of regional math educators.

Goal 4

Objective 4.1

- Begin discussions for chapters of AWM and Math Alliance.

Objective 4.2

- Increase faculty travel expenditures.
- Spread service load more evenly across the department.

Objective 4.3

- Begin adjustment of budget priorities.

Objective 4.4

- Assist in the state crisis in K-12 education by curriculum modification, construction of resources.
- Discuss undergraduate curriculum in terms of supporting new initiatives.

Objective 4.5

- Produce department newsletter twice a year.
- Develop plans to optimize use of foundation gifts.
- Begin database of former students to increase number of foundation donors.

Key Performance Indicators of what will be achieved by 2025

Goal 1: Enhance student success and social mobility.

- Increase our number of majors by 15%.
- Increase graduate enrollement by 7.5%.
- Be 15% above national average in diversity at the undergraduate and graduate level.
- Increase the number of BSc, MSc, and PhDs awarded by 15%, 7.5% and 7.5%.
- Create new concentrations in the major to support in-demand and emerging areas.

Goal 2: Elevate research and creativity.

- Have two thirds of faculty either have support or apply for it each year by 2025.
- Increase education grants submitted by 20% by 2025.
- Have 70% of our faculty present research nationally or internationally by 2025.
- Host an international conference by 2025.
- Maintain our high rate of publication.
- Maintain ranking among math departments in the US (\# 117 in 2018).

Goal 3: Amplify extension and outreach.

- Establish a network with alumni and educators.
- Increase Outreach and Extension expenditures by 20% by 2025.
- Increase the percentage of faculty involved in outreach and extension by 15% by 2025.

Goal 4: Build a robust university system.

- Obtain $250,000 in foundation gifts from now to 2025.
- Create a new endowment by 2025.
- Increase the number of foundation gifts by 15% by 2025.