Mathematics, BS

GENERAL STANDARDS

2023

The standards used in this program review come from the Council for the Advancement of Standards in Higher Education. (2019). *CAS self-assessment guide for Assessment Services*. Washington, DC.

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Mathematics, BS Program Review – May 2023

Mathematics Degree Program

School of Mathematics – Dr. Carol Fowlkes

Standard 1: Mission

- Mathematics Program Mission Statement

- The mathematics degree program at MACU aligns with the university's mission by preparing students to create, collaborate, and innovate to solve local and global problems. The math program prepares students for a career in Science, Technology, Engineering, and Math (STEM), including secondary education and working with other disciplines in our multidisciplinary option. The goal is to create critical thinkers through rigorous curriculum and exceptional support from the faculty.

- The Mathematics Degree Program aligns with the content standards of the National Council of Teachers of Mathematics

Summary statement

- Mathematics degree program requires 51 hours of mathematics coursework, 47 hours general education, 27 elective hours
- Multidisciplinary option requires 32 hours of applied mathematics coursework, 30+ hours from a second multidisciplinary option, 47 hours general education, 15 elective hours
- Secondary Mathematics requires 41 hours of mathematics coursework, 33 hours professional education courses
- Data obtained (SLOs, POs) does include math, math multidisciplinary, secondary math, and data analytics majors

Math Program – math, math multidisciplinary, secondary math

All 3 mathematics majors	enrolled	graduates
2019-2020	17	6
2020-21	15	6
2021-22	13	3

- The outlook is good for the mathematics program
- Foundational program for many other programs including Biology, Pre-Nursing, Data Analytics (STEM)
- Efforts focused on recruiting STEM majors and efforts to reach new students through our online and virtual Concurrent courses (College Algebra)

Standard 2: Program and Services

- Wildly Important Goals
  - **2019-20** WIG #1: The School of math will develop courses for the Data Analytics degree
    - Met 100% of this goal
  - **2019-20** WIG #2: The School of Math and Science will work with Keller and Associates in applying for 3 NSF/USDA grants - IUSE, S-STEM, AISL.
    - Met goal in applying – received USDA DLT grant but did not receive IUSE grant

Standard 2: Program and Services

- Wildly Important Goals
  - **2020-21** WIG #1: The School of math will go from researching various STEM grants to writing grants by May, 2021. To accomplish this goal we had lead measures that we evaluated weekly.
    - Did not apply this year for NSF grants
  - **2020-21** WIG #2: The School of Math will go from 2 degree offerings to 3 degree offerings including multidisciplinary, concentrations, and certificates
    - 100% Met goal – Proposal to approve Data Analytics was approved and began Jan 2020

Standard 2: Program and Services

- Wildly Important Goals
  - 2021-22 WIG #1: The School of math will go from researching various STEM grants to writing grants by May, 2021. To accomplish this goal we had lead measures that we evaluated weekly.
    - 100% met – Schools of Math and Science partnered with University of Arkansas/Dr. Ceballos and submitted an NSF S-STEM grant. We were not awarded this grant.
  - 2021-22 WIG #2: The School of Math will add more technology and R, Python assignments to the math courses. We will go from 0 assignments involving R and Python in the undergraduate CAS courses to 3 assignments across the curriculum by May, 2022.
-
    - 100% Met goal – added Data Analytics as a multidisciplinary options and Accounting added Data Analytics as a concentration. More options utilizing technology in the workplace. Also added 3 new coding assignments to Discrete Math and Mathematical Modeling

2.2 Program Design, Structure, and Framework

- The School of Mathematics consistently reviews, evaluates, and revises the Mathematics Program. Systematic reviews of the program are accomplished by semi-annual reports such as retention reports, school summary reports, learning outcomes measurements, learning reports, and course reports and D3 forms as they were formerly known. These are located at MACU's assessment site,

Standard 3: Student Learning, Development, and Success

- The program utilizes Curriculum maps to determine where each Program Outcome (PO) and Student Learning Outcome (SLO) is met
- The program utilizes an extensive assessment plan to evaluate each SLO at the end of each semester
- The program utilizes SLO measurement reports to determine action plans for improvement at the end of each semester.

Standard 3: Student Learning, Development, and Success

- Graduate information
  - Spring 2020 – 5 graduates
    - Mathematics (2)
    - Mathematics multidisciplinary
      - Education second option (1)
      - English second option (1)
      - Business second option (1)

Standard 3: Student Learning, Development, and Success

- Graduate information
  - Spring 2021 – 2 graduates
    - Mathematics multidisciplinary
      - Psychology second option (1)
      - Business second option (1)

Standard 3: Student Learning, Development, and Success

- Graduate information
  - Spring 2022 – 2 graduates
    - Secondary Math (1)
    - Mathematics multidisciplinary
      - Biology second option (1)

Standard 4: Assessment

- School of Mathematics Assessment system for POs and SLOs
- MACU Assessment
  - Course Reports
    - Continuously get high ranks from students and each semester the lowest average score is addressed and an action plan noted to improve scores
  - Retention Reports
    - Reported retention rates
      - 2022 83.33%
      - 2020 80%

Standard 4: Assessment

- MACU Assessment
  - Student Learning Measurement
    - Over the past 3 years the grand total for those students who met or exceeded expectations over 9 Program Outcomes and 22 Student Learning Outcomes was 92.1% average with an 8% standard deviation. Most percentages were above 90%.

Standard 5: Access, Diversity, and Inclusion

- University wide Celebration of Culture
- Full-time math faculty are available during office hours, by text, zoom, facetime after office hours
- Mathematics program has a diverse population with many international students pursuing STEM majors

Standard 6: Leadership, Management, and Supervision

- Chair of the School of Mathematics
  - Dr. Carol Fowlkes
- Program Coordinator for Secondary Math reporting
  - Dr. Carol Fowlkes
- Annual Chair report
  - Located on the MACU Assessment site
    - Summary of the “State of the Program”
- Annual Strategic Planning
  - 4Dx Notebooks completed with long range planning, WIGS, and action goals

Standard 7: Human Resources

- School of Mathematics
  - 2 full-time faculty
  - 2 current adjunct faculty
  - More adjunct faculty in on-boarding process
  - 1 student worker

- **EMPLOYMENT PRACTICES:**
  - Curriculum Vitae for all faculty
  - Faculty Performance Review
    - Teaching
    - Scholarship
    - Service
- **Professional development:**
  - Full-time faculty encouraged to attend NCTM National Conference.

Standard 8: Collaboration and Communication

- School of Mathematics has an interdisciplinary approach to its teaching and collaboration with faculty
  - General Education (Core discipline)
  - School of Science (STEM and NSF grants)
  - School of Teacher Education (DLT grant, committee meetings, current best practices in public schools)
- Resources for Math Majors
  - University website: www. Macu.edu
  - University Catalog
  - Advising
  - Computer lab in classroom with math-specific technology
  - Tutoring

Standard 9: Ethics, Law, and Policy

- Ethical Statements and Practice
  - Signed Contract
  - Faculty Handbook
  - FERPA
  - Academic Honesty and Integrity Policy
  - Title IX

Standard 10: Financial Resources

- School of Mathematics follows MACU's budgeting process
  - Complete budget worksheet (October for the following academic year)
    - Adjunct faculty needed for upcoming year
    - Office Supplies
  - Budget submitted to Dean of CAS, Vice-President of Academic Affairs in October
  - Budget review process through the CFO for final approval.
  - Monthly budget reports to see where the School is financially

Standard 11: Technology

- Technology Access for Math Majors
  - Library
  - Computer Labs
  - Computer lab in Fozard Hall classroom with math-specific technology
  - IT support
  - Faculty receive technology training
  - IT provided Ipad for presentation by zoom with Apple Pencil for working problems

Standard 12: Facilities and Infrastructure

- Kennedy Hall
  - Classrooms
  - Library/Computer Lab with presentation software (Sympodium and SMART notebook)
- Fozard Hall
  - Classrooms
  - Specific classroom with presentation software (Sympodium and SMART notebook)
  - Faculty Offices

Standard 1: Mission

Overview Questions:

1. How does the program mission embrace student learning and development?
2. In what ways does the academic program mission complement the mission of the institution?
3. To what extent is the program mission used to guide practice?

1.1 Mission Statement

- Minimum requirement to meet substandard: A one sentence explaining why the program exists and how it supports the MACU Mission.
- Additional information about the substandard:
    - The mission statement references student learning, development, and success.
    - The program mission is consistent with the mission of the department, college, division, institution, and applicable professional standards.
    - The program mission is appropriate for the institution's students and other constituents.

1.2 Summary Statement

- Minimum requirement to meet substandard:
    - The School Chair will make a summary statement about the Program based on the data collected for the Program Review.
    - The statement should cover the program's past three years and what the Chair's vision for the program is for the next three years.
    - The statement should be no longer than two pages.

Suggested Evidence and Documentation:

1. Current mission statement, brief description of how it was developed, and date of last review
2. Additional goals, values, and statements of purpose
3. Description and copies (if applicable) of where mission statement is disseminated (e.g., included in operating and personnel policies, procedures and/or handbook, hanging in office common space, on website, in strategic plan, and other promotional materials)
4. Institutional/divisional mission statements (e.g., map program mission to broader mission statements)
5. Any additional professional standards aligned with program/service (e.g., standards promoted by academic program organizations)
6. Institutional demographics, description of student population served, and information about community setting
7. Chair Summary Statement

Standard 1: Mission

Chair's Summary Statement about the State of the Program

Mid-America Christian University (MACU) is a faith-based institution of approximately 400 traditional undergraduate students which embraces the Church of God of Indiana tradition of scholarship and service. A primary goal of MACU is the delivery of a strong liberal arts curriculum with an emphasis on quality teaching. MACU awards the Bachelor of Science degrees in the mathematics program: Mathematics, Mathematics Multidisciplinary and Secondary Mathematics Education. The university is accredited by the Higher Learning Commission of North central Association of Colleges and Schools. The Secondary Mathematics Education program was recently reviewed in 2021 by the Office of Educational Quality and Accountability (OEQA) and was met with no conditions. This program aligns with the standards of the National Council of Teachers of Mathematics.

Mathematics Program Mission Statement

The mathematics degree program at MACU aligns with the university's mission by preparing students to create, collaborate, and innovate to solve local and global problems. The math program prepares students for a career in Science, Technology, Engineering, and Math (STEM), including secondary education and working with other disciplines in our multidisciplinary option. The goal is to create critical thinkers through rigorous curriculum and exceptional support from the faculty.

Mathematics majors are required to take 51 hours of mathematics coursework, 47 hours in general education and 27 elective hours to allow those students with interests in medicine, engineering, physics, etc to complete those hours that will further their vocation of their choosing. Mathematics Multidisciplinary majors are required to take 32 hours of applied mathematics coursework, 30 hours in another multidisciplinary second option as well as 47 hours of general education courses. Secondary Mathematics Education majors are required to take 41 hours of mathematics coursework, 33 hours of professional education courses and 47 hours of general education courses. CAS Data Analytics students are included in this review because they work with the Chair of the School of Mathematics as their advisor and are included in data reporting on many of the program outcomes because of the 18 hours of mathematics courses required for their major.

Attendance in the program fluctuates greatly, but there is a steady graduation rate with students finding great jobs and using their degree upon graduation.

All 3 mathematics majors	enrolled	graduates
2019-2020	17	6

2020-21	15	6
2021-22	13	3

Of the 6 graduates in 2019-20, 2 are teaching secondary mathematics, 3 are working in their chosen vocation for which they were prepared, and 1 pursued and will graduate with an MBA in the Spring of 2023. Of the 17 enrolled, there were 7 mathematics majors, 6 math multidisciplinary with business, education, English, and biology as second options. There was 1 secondary math major and 3 CAS data analytics majors.

Of the 6 graduates in 2020-21, 1 is teaching math and 5 are working in their chosen field utilizing the tools that they learned in their coursework at MACU. Of the 15 enrolled, 4 were mathematics majors, 6 were math multidisciplinary with psychology, business, education and biology as second options. There were 4 CAS data analytics majors and 1 secondary math major.

Of the 3 graduates in 2021-22, 1 continued her education and was accepted into Oklahoma University to pursue a Pharmaceutical Doctorate, 1 is working in his chosen field utilizing the tools learned in MACU coursework, and 1 is teaching secondary mathematics. Of the 14 enrolled in the program, 5 were mathematics majors, 3 were math multidisciplinary with business and biology being their second options. 3 were secondary math majors and 3 were in the CAS data analytics program.

The outlook for the mathematics program is good. This is the foundational program for many other programs within the university such as the Data Analytics program and the Biology program, including Pre-Nursing. With efforts focused on recruiting STEM majors and efforts to reach new students through our online concurrent students, specifically, online College Algebra students who are high-achieving students, the future is bright. We will continue to look for new and innovative ways to attract and recruit students to this program.

Standard 2: Program and Services

Overview Questions:

1. What are the goals and objectives of the academic program?
2. To what extent does the academic program structure allow it to be effective?
3. What are the key programs, services, and resources offered by the academic program?
4. How does the academic program contribute to the student experience?

2.1 Program and Services Goals

- Minimum requirement to meet substandard: The program's Wildly Important Goals (WIGs) for the past three years.
- Additional information about the substandard:
    - The program's Wildly Important Goals (WIGs) are written, aligned with the program's mission statement, and support institutional priorities and expectations of the program.
    - The program regularly develops, reviews, evaluates, and revises its WIGs.
    - The program communicates WIGs and progress toward achievement to appropriate constituents.

2.2 Program Design, Structure, and Framework

- Minimum requirement to meet substandard: The program has clearly stated, current, relevant, and documented policies and procedures
- Additional information about the substandard:
    - The program has clearly stated, current, relevant, and documented responsibilities and performance expectations for personnel, and organizational charts demonstrating clear channels of authority.
    - The program works in close consultation and collaboration with others with expertise and departments across the institution to meet the needs and interests of students.
    - The program is intentionally designed to incorporate research and theories on student learning, achieve predetermined student learning, and development outcomes.

2.3 Program Documentation

- Minimum requirement to meet substandard: Show the program's documentation to MACU's internal and external constituencies.
- Additional information about the substandard:
    - Insert a copy of the Program Sheet from the latest version of the Academic Catalog.
    - Provide evidence of the Program's curriculum reviews in the last three years.
    - Provide evidence of any MACU Faculty Senate decisions about the Program in the last three years.

Suggested Evidence and Documentation:

1. List of program goals and objectives
2. List of current collaborations across the institution
3. Map of program activities
4. Map or report of outcome assessment activities, including results
5. Strategic plans program design and enhancement

6. Specifications or requirements (if applicable)
7. Organization Chart
8. Program Sheet
9. Curriculum Reviews
10. Senate Documents

Program Standard 2:
2.1 Program Services Goals

MACU's strategic planning process calls for each school/program/department to create "Wildly Important Goals (WIGs)" each year that align to the university's WIGs that are published each year. Weekly WIG meetings with the school or department allow you to stay focused on the wildly important and create scoreboards to create a culture of accountability. Over the past 3 years these WIGs have been the wildly important goals for the School of Mathematics and its mathematics degree program.

2019-2020
WIG #1: The School of math will develop courses for the Data Analytics degree

Lead Measure 1:Weekly Course development progress.

Summary of Evaluation Results: The school met 100% of this goal. The data analytic degree was created and rolled out on Jan 1. The first graduate with a DA degree was spring 2020. There are two undergraduate students who have added the DA concentration to their business degree, and there are students with a declared DA degree in the CAGS program. A brand new course, Business Calculus, was developed in October and was taught for the first time in January. MATH 3103 Linear Algebra has been developed for the 5 week online format and will be taught in June, and a rework of MISE 4603 Languages to incorporate Python coding instead of Visual Basic, a more applicable programming language for Data Analysts was developed and the new course began in April. Courses that will continue to be developed in the 5 week form throughout the summer are MATH 3403 Discrete Math, MATH 3703 Introduction to Statistics, MATH 4243 Regression Analysis.

WIG #2: The School of Math and Science will work with Keller and Associates in applying for 3 NSF/USDA grants - IUSE, S-STEM, AISL.

Lead Measure 1: Participate in conference calls, writing, research as needed

Summary of Evaluation Results: The second WIG was partially completed in that we applied for the IUSE grant and are awaiting the result of this application. We will also be working with Dr. Vickie Hinkle as the P.I. for the DLT grant that MACU received. We did not receive the IUSE grant which is awarded annually by the NSF.

2020-2021
WIG #1: The School of math will go from researching various STEM grants to writing grants by May, 2021. To accomplish this goal we had lead measures that we evaluated weekly.

Lead Measure 1: The lead measure for this goal was to have weekly meetings with Keller and associates and the School of Science.

Lead Measure 2: Weekly assignments that may include literature reviews, collecting data, communicating with other institutions. These will be assigned at weekly meetings.

WIG #2: The School of Math will go from 2 degree offerings to 3 degree offerings including multidisciplinary, concentrations, and certificates

Lead Measure 1: Weekly assignments that will lead to degree development. These will include other schools, internet research of emerging STEM degrees, proposals to develop, etc.
Lead Measure 2: Number of students that are in the School of Math across all degree options, including multidisciplinary, certificates, and concentrations.

Summary of Evaluation Results: The school met 100% of this goal. The proposal to approve Data Analytics was approved and began Jan 2020. Data Analytics was also added as a multidisciplinary option.

2021-2022

WIG #1: The School of math will go from researching various STEM grants to writing grants by May, 2022. To accomplish this goal we had lead measures that we evaluated weekly.

Lead Measure: The lead measure for this goal was to have weekly meetings with Keller and associates and the School of Science.

Summary of Evaluation Results: The school met 100% of this goal. The Schools of Math and Science were able to partner with University of Arkansas and submitted an NSF S-STEM grant in 2021. This grant would have increased scholarship opportunities for STEM majors (Biology, Mathematics, Data Analytics). We were not awarded this grant.

WIG #2: The School of Math will add more technology and R, Python assignments to the math courses. We will go from 0 assignments involving R and Python in the undergraduate CAS courses to 3 assignments across the curriculum by May, 2022.

Lead Measure: Weekly assignments in learning R and its application to current courses that are being taught.

Summary of Evaluation Results: The school met 100% of this goal. The school of math proposed adding Data Analytics as a multidisciplinary option, and Accounting added Data Analytics as a concentration. This gives students more options in pursuing degrees utilizing technology in the workplace. Added 3 assignments in Python and/or R into Discrete Math, Mathematical Modeling.

2.2 Program Design, Structure, and Framework

The School of Mathematics consistently reviews, evaluates, and revises the Mathematics Program. Systematic reviews of the program are accomplished by semi-annual reports such as retention reports, school summary reports, learning outcomes measurements, learning reports, and course reports and D3 forms as they were formerly known. These are located at MACU's assessment site, https://sites.google.com/macu.edu/macu-d3-forms-cas-math-and-sci/home.

2.3 Program Documentation

Program Sheet for Mathematics from MACU catalog 2022-23

Mathematics, B.S.

Effective: 04/15/2020

The B.S. in Mathematics provides a comprehensive understanding of the nature of mathematics and its relation to the sciences, philosophy, and other liberal arts. In addition to general education and Bible coursework, course topics include geometry, calculus, linear algebra, abstract algebra, statistics, differential equations and mathematical modeling to provide a foundation on which graduates may begin a career in teaching, applied mathematics and research or pursue graduate studies.

University Core
Specific courses within the University Core are listed on the first page of this catalog section.

University Core (46 Hrs.)
Bible/Theology (12 hrs.)
Communication (9 hrs.)
U.S. History and Government (6 hrs.)
Science (6 hrs. *plus 1 hr. of lab*)
Math (3 hrs.):
*MATH 1513 College Algebra
Social Sciences (3 hrs.)
Humanities (6 hrs. – *3 hrs. must be literature*)

*These courses are required prerequisites for the major and/or discipline. Upon completion of the above courses, corresponding University Core Requirements are satisfied. (These courses are required for this major regardless of previous degrees conferred). *See the Academic Program Requirements section of this Catalog for additional requirements.*

Orientation Requirement
Orientation (1Hr)
UNIV 1121 First-Year Evangel

Major Requirements
Mathematics Core (29 Hrs.)
MATH 2114 Calculus I and Analytic Geometry
MATH 2214 Calculus II
MATH 2313 Calculus III
MATH 3103 Linear Algebra
MATH 3403 Discrete Math
MATH 3703 Introduction to Statistics
MATH 4113 Mathematical Modeling
MATH 4203 Mathematical Statistics
MISE 4103 Programming Concepts ***or*** *CMSC 1203Foundations of Programming*

Mathematics Theory Application (22)
MATH 1303 Plane Trigonometry
MATH 3303 History of Math
MATH 4003 College Geometry I
MATH 4013 Differential Equations
MATH 4103 Abstract Algebra
MATH 4303 College Geometry II
PHYS 1134 General Physics I (with Lab) ***or*** *PHYS 2104 Physics I (with Lab)*

Electives (24 Hrs.)
Choose twenty-four (24) hours from any area to meet the required minimum 122-hour requirement for your bachelor's degree. At least seven (7 Hrs.) should be from upper-division.

A student must have a minimum of 40 hours of 3000 and 4000 level courses in order to receive a bachelor's degree. Please note: This may require the student to take upper-division elective hours in order to meet this graduation requirement.

Students may choose to replace the electives above with one of the optional concentrations listed below or a Multidisciplinary option (See Multidisciplinary options in the Academic Program Requirements section). In addition, substitutions in mathematics core or theory application may be made per advisor approval.

Total University Core	**46**
Total Orientation	**1**
Total Mathematics Core	**29**
Total Math Theory Application	**22**
Total Electives/Optional Concentration/Discipline	**24**
Total Required Hours	**122**

Mathematics Optional Concentrations

Data Analytics Concentration (24 Hrs.)
***Required Courses* (21 Hrs.)**
CMSC 1203 Foundations of Programming
CMSC 3103 Analytics Management and Presentation
CMSC 3463 Advanced Structured Query Language (SQL)
CMSC 4103 Introduction to R for Data Analytics
MISE 4403 Project Planning and Implementation
MISE 4643 Database Management
MISE 4663 Business Intelligence/Data Analytics
Choose three (3) hours of any electives

Management Information Systems Concentration (24 Hrs.)
***Required Courses* (18 Hrs.)**
CMSC 1203 Foundations of Programming
MISE 3203 Networking/Architecture/Cybersecurity
MISE 3603 IT Management
MISE 4403 Project Planning and Implementation
MISE 4643 Database Management
MISE 4663 Business Intelligence/Data Analytics
Choose six (6) hours of any electives

Program Outcomes

Student Learning Outcomes

Collaborations: Data Analytics, Biology, Teacher Education

Standard 3: Student Learning, Development, and Success

Overview Questions:

1. What are the most significant student learning, development, and success outcomes of the academic program?
2. What is the demonstrated impact of the academic program on student learning, development, and success?

3.1 Program Curriculum Map

- Minimum requirement to meet substandard: Provide a copy of the program's Curriculum Map. The Curriculum Map shows what student learning outcomes (SLOs) or Operational Outcomes (OOs) could be measured in each course within the program to support the program's outcomes (POs).
- Additional information about the substandard: If a major change to the program's curriculum or POs occurred in the last three years, provide evidence and explanations of why those changes were made.

3.2 Assessment of Student Learning and Development

- Minimum requirement to meet substandard: The program uses evidence to create strategies for improving student learning, development, and success through Learning Reports.
- Additional information about the substandard:
    - The program has POs that guide what program graduates should know and/or do.
    - The program provides evidence of the extent to which SLOs are achieved, through measurement, ensuring POs are met.
    - The program aligns predetermined student learning and development outcomes with recognized models and institutional framework.

3.3 Program Contribution to Student Learning, Development, and Success

- Minimum requirement to meet substandard: Demonstrate how program graduates have used the degree in the past three years.
- Additional information about the substandard:
    - The program helps students and designated clients prepare for their careers and meaningful contributions to society.
    - Provide numbers, graduate feedback, and other quantifiable data.

Suggested Evidence and Documentation:

1. Program student learning and development outcomes, and brief description of how they were developed
2. Program student learning, development, and success outcomes and related assessment data
3. List of current collaborations across the institution that facilitate student learning, development, and success
4. Map of program activities and ways they connect to student learning, development, and success outcomes
5. Curriculum Map
6. Student Learning Outcome Measurements
7. Student Learning Reports
8. Information about Program Graduates

3.1 Program Curriculum map

The mathematics degree program curriculum map
This includes the Program Outcomes (POs) and Student Learning Outcomes (SLOs) for the mathematics program.
https://docs.google.com/spreadsheets/d/1YJVA-T73yjDsAHgrabiTklLjtFscLDtUg6n34VoQoVw/edit#gid=290464169

3.2 Assessment of Student Learning and Development

The program and student learning outcomes were developed to align with the National Council of Teachers of Mathematics (NCTM) subject area standards for pre-service teachers. PO's and SLO's are assessed bi-annually after the fall and spring semesters. The following assessment chart shows how each program outcome and student learning outcome is assessed.

Assessment System for School of Math and Science

Program Outcome 1: Knowledge of Mathematical Problem Solving

Student Outcome 1.1 The student will apply and adapt a variety of appropriate strategies to solve problems

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,4	Calculus I	Shadow Box Project	3 or above	Calculus I after related rates	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	1,2,3,4,5	Calculus I	Lab Projects	3 or above	Weekly	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	5	Calculus II	Lab Projects	3 or above	Weekly	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 2: Knowledge of Reasoning and Proof

Student Outcome 2.1 The student will make and investigate mathematical conjectures.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,2,3	College Geometry I	Conjectures Sketchpad project	3 or above	End of Semester	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	1,2,4,5	College Geometry II	Develop student's own geometry	3 or above	Final Project in College Geometry II	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 2.2 The student will develop and evaluate mathematical arguments and proofs.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	3,4	College Geometry I	Proof Portfolio	3 or above	Final Project in College Geometry I	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 3: Knowledge of Technology

Student Outcome 3.1 The student will use knowledge of mathematics to select and use appropriate technological tools, such as but not limited

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	10	History of Math	Media Presentation	3 or above	History of Math Requirement	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	1,2	Linear Algebra	Create Online Dancer	3 or above	Linear Algebra requirement	Direct	Internal	End of Semester	End of school year	Following Fall
K,S		Introduction to Statistics	Final Project Introduction to Statistics	3 or above	Final for Introduction to Statistics	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 4: Knowledge of Number and Operation

Student Outcome 4.1 The student will apply the fundamental ideas of number theory

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	2,4	Discrete Math	Code Portfolio	3 or above	End of Semester	Direct	Internal	End of Semester	End of School Year	Following Fall
K,S		Abstract Algebra	Graphing Calculator Programming	3 or above	End of Semester	Direct	Internal	End of Semester	End of School Year	Following Fall

Student Outcome 4.2 The student will recognize matrices and vectors as systems that have some of the properties of the real number system.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1	Linear Algebra	Markov Chain Application project	3 or above	End of Semester	Direct	Internal	End of Semester	End of School Year	Following Fall

Student Outcome 4.4 The student will demonstrate knowledge of the historical development of number and number systems including contributions from diverse cultures.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1	History of Math	Final Research paper	3 or above	Final for History of Math	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 5: Knowledge of Different Perspectives on Algebra

Student Outcome 5.1 The student will analyze patterns, relations, and functions of one and two variables.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,2	Calculus I	Lab Projects	3 or above	Weekly	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 5.2 The student will apply fundamental ideas of linear algebra.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,2,3,4	Linear Algebra	Final Comprehensive Exam	70%	End of Semester	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 5.3 The student will apply the major concepts of abstract algebra to justify algebraic operations and formally analyze algebraic structures.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S		Abstract Algebra	Final Comprehensive Exam	70%	End of Semester	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 5.4 The student will use mathematical models to represent and understand quantitative relationships.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	2,3,4,5	College Geometry II	Develop student's own geometry	3 or above	Final Project in College Geometry II	Direct	Internal	End of Semester	End of school year	Following Fall
K,S		Mathematical Modeling	Final Project in Mathematical Modeling	70%	Final for Mathematical Modeling	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 5.5 The student will demonstrate knowledge of the historical development of algebra including contributions from diverse cultures.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	2	History of Math	Final Research paper	3 or above	Final for History of Math	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 6: Knowledge of Geometries

Student Outcome 6.1 The student will demonstrate knowledge of core concepts and principles of Euclidean and non-Euclidean geometries in

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	2,3,6	College Geometry I	Geometer's Sketchpad Project	3 or above	End of Semester	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	2,4,5	College Geometry II	Geometer's Sketchpad Project	3 or above	End of Semester	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 6.2 The student will use concrete models, drawings, and dynamic geometric software to explore geometric ideas and their applications in real-world contexts.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,4,5,6	College Geometry I	Proof Portfolio	3 or above	Final Project in College Geometry I	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 6.3 The student will demonstrate knowledge of the historical development of Euclidean and non-Euclidean geometries including contributions from diverse cultures.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	3	History of Math	Final Research paper	3 or above	Final for History of Math	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 7: Knowledge of Calculus

Student Outcome 7.1 The student will demonstrate a conceptual understanding of and procedural facility with basic calculus concepts.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	2,3,4,5	Calculus I	Final Comprehensive Exam	70%	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	1,2,3,4	Calculus II	Final Comprehensive Exam	70%	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	1,2,3,4,5	Calculus III	Final Comprehensive Exam	70%	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 7.2 The student will use the concepts of calculus and mathematical modeling to represent and solve problems taken from real-world contexts.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,4	Calculus I	Shadow Box Lab	3 or above	Calculus I after related rates	Direct	Internal	End of Semester	End of school year	Following Fall

Student Outcome 7.3 The student will demonstrate knowledge of the historical development of calculus including contributions from diverse cultures.

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	4	History of Math	Final Research paper	3 or above	Final for History of Math	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 8: Knowledge of Discrete Mathematics

Student Outcome 8.1 The student will apply the fundamental ideas of discrete mathematics in the formulation and solution of problems arising from real-world situations

K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	1,2,4	Discrete Math	Final Comprehensive Exam	70%	End of Semester	Direct	Internal	End of Semester	End of school year	Following Fall

Program Outcome 9: Knowledge of Data Analysis, Statistics, and Probability										
Student Outcome 9.1 The student will design investigations, collect data, and use a variety of ways to display data and interpret data representations that may include bivariate data, conditional probability and geometric probability.										
K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S		Introduction to Statistics	Final Project Introduction to Statistics	3 or above	Final for Introduction to Statistics	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	1,3,4,5	Mathematical Statistics	Final Project in Mathematical Statistics	3 or above	Final for Mathematical Statistics	Direct	Internal	End of Semester	End of school year	Following Fall
Student Outcome 9.2 The student will use appropriate statistical methods and technological tools to describe shape and analyze spread and center.										
K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S		Introduction to Statistics	Analysis of Spread and Center Exam	70%	First test in Fall semesters	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	2,3,4,6,7	Mathematical Statistics	Analysis of Spread and Center Exam	3 or above	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall
Student Outcome 9.3 The student will use statistical inference to draw conclusions from data.										
K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S		Introduction to Statistics	Confidence Interval Construction Exam	70%	During Semester	Direct	Internal	End of Semester	End of school year	Following Fall
K,S		Introduction to Statistics	Hypothesis Test Final Project	3 or above	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall
K,S	6,7,8	Mathematical Statistics	Hypothesis Test Final Project	3 or above	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall
Student Outcome 9.4 The student will demonstrate knowledge of the historical development of statistics and probability including contributions from diverse cultures.										
K,S,D	Course Outcome	Course or Program Requirement	Method of Assessment	Criteria for Measurement	Point of Assessment	Direct or Indirect Assessment	Internal or External Assessment	Data Collection Timetable	Data Analysis Timetable	Program Improvement Timetable
K,S	5	History of Math	Final Research paper	3 or above	End of semester	Direct	Internal	End of Semester	End of school year	Following Fall

The mathematics program director uses the Mathematics Assessment System to evaluate students each semester to find the number of students who exceed expectations, meet expectations, need improvement, or unacceptable performance. The director then uses this data to complete a learning report (previously known as a D3 form) to determine action plans for improvement. The previous 3 years of reporting can be found here: Program Analyses-School of Math

3.3 Program Contribution to Student Learning, Development, and Success

Program graduate information

Program graduates are truly impacting their world for Christ using what they have learned at MACU to be successful business men and women. In Spring 2020, five graduated with mathematics degrees. Three math multidisciplinary degrees with Education, English, and Business as their second options and the

other two were mathematics majors. Two of the five are teaching math at secondary level, one went on to get his Master's degree, and one is working in the field. In Spring 2021, two graduated and both were math multidisciplinary degrees with Psychology and Business as their second options. They are both working out in the field. In 2022, two graduated with mathematics degrees, one was Secondary Math and one was math multidiscipline with Biology as the second option. One is currently teaching at the secondary level and the other was accepted into graduate school at OU School of Pharmacy.

Standard 4: Assessment

Overview Questions:

1. What is the comprehensive assessment strategy for the academic program?
2. What are priorities for assessment of the academic program and how are those developed?
3. How are tangible, measurable learning, development, success, and program outcomes determined to ensure achievement of mission and goals?
4. How does the academic program use assessment results to inform improvement? What changes, adjustments, or improvements have been made as a result of assessment activities?
5. How does the academic program share assessment results with relevant constituencies?
6. How does the academic program support ongoing development of assessment competencies for personnel?

4.1 Establishing a Culture of Assessment

- Minimum requirement to meet substandard: Display assessment plans that work towards the achievement of the program's mission, goals, outcomes, and objectives.
- Additional information about the substandard: Display the past three years of evidence for:
    - Faculty evaluations
    - WIGs
    - End of Course (EoC) results
    - Course Reports
    - Retention Reports

4.2 Assessment Plan and Process

- Minimum requirement to meet substandard: Show how the program reviews, interprets, and monitors changes based on findings of assessment from multiple measures of data collection.
- Additional information about the substandard:
    - The program identifies goals, outcomes, and objectives to guide its work.
    - The program engages students, faculty, staff, administrators, and other relevant constituents in assessment activities.

4.3 Reporting Results and Implementing Improvement

- Minimum requirement to meet substandard: The program uses evidence from assessment activities to inform decision-making and planning for continuous improvement.
- Additional information about the substandard:
    - The program uses assessment results to demonstrate learning, development, effectiveness and continuous improvement.
    - The program informs constituents of assessment results and how data have been used for continuous improvement.

Suggested Evidence and Documentation:

1. Academic program goals, key indicators, outcomes, and related assessment data
2. Assessment data related to student learning, development, and success outcomes
3. Assessment plans and annual reports
4. Minutes of meetings at which assessment activities and results are discussed

5. Professional development activities to improve assessment competence
6. Wildly Important Goals (WIGs)
7. End of Course Assessment Results
8. Instructor/Faculty Evaluations
9. Course Reports
10. Retention Reports

4.1 Establishing a Culture of Assessment

Using the assessment system shown on Standard 3, the program chair submits bi-annual reports at the end of each semester or annual reports to the Office of Institutional Effectiveness. These reports are the School Summary Report, Learning Outcomes Measurements, Learning Report, Course Report, and the Retention Report.

Course Reports:
End of Course evaluations for the mathematics program show that the faculty are well-liked and the students feel they are knowledgeable about the subject matter. Over the past three years the areas of focus were Questions 3, 4, 9 from the student evaluations. Q3: "My instructor provided regular updates about our class through the News section, discussion boards, class announcements, or other means" and the School of Math average on this question was 3.1 out of 4. The adjunct faculty were encouraged to post weekly updates on d2L even if it is an on-ground course. Q4: "My instructor provided feedback on assignments within 5 class days of the due date for CAGS courses / 2 weeks of the due date for CAS courses." and the School of Math average score was 3 out 4 on this question. The focus was to encourage all faculty to have assignments turned back within one week. Federal work study students were also used to assist in grading. Q9: "The concepts, materials, and activities of this course are useful outside of the classroom" and the average for the School of Math was 3.32 out of 4 on this question. We focused on the application of content to real world contexts in all of our courses.
Program Analyses-School of Math

Retention Reports:
The retention rates over the last 3 years have been up and down. The reported retention rate for 2022 was 83.33%. The rate for 2020 was 80%. There was not a report for 2021 due to Covid.
Program Analyses-School of Math

Student Learning Measurements:
The following is a summary of the SLO measurements from Fall 2019 through Spring 2022. The chart states the Program Outcomes, the SLO's under that Program Outcome and the percentage of students that either met or exceeded expectations on that outcome. NA simply means that it was not assessed that semester. Most percentages were above 90% and the grand total for all semester over all SLO's was 92.1%.
Program Analyses-School of Math

Standard 5: Access, Diversity, and Inclusion

Overview Questions:

1. How does the academic program ensure constituents experience a welcoming, accessible, and inclusive environment that is equitable and free from harassment?
2. How does the academic program identify barriers to and advocate for access, diversity, and inclusion?
3. How does the academic program address imbalances in participation among selected populations of students?
4. How does the academic program address imbalances in staffing patterns among selected populations of program personnel?
5. How does the academic program ensure cultural competence of its personnel to foster inclusion in the program?

5.1 Inclusive Educational and Work Environments.

- Minimum requirement to meet substandard: Provide evidence of the program's goal of inclusiveness to all MACU constituencies.
- Additional information about the substandard:
    - The program creates and maintains educational and work environments that are welcoming, accessible, inclusive, and free from bias or harassment.
    - The program does not discriminate on the basis of race, color, national origin, sex, disability, age, or veteran status; or any other basis included in codes, laws, and institutional policies.

5.2 Implementing Aspects of Access, Diversity, and Inclusion

- Minimum requirement to meet substandard: Provide evidence of the program's inclusiveness to all MACU constituencies.
- Additional information about the substandard:
    - The program provides equitable access to facilities and resources for all constituents.
    - The program addresses the characteristics and needs of diverse constituents when establishing and implementing services, policies, procedures, and practices.
    - The program responds to the needs of all constituents when establishing hours of operation and developing methods for delivering programs, services, and resources.
    - Personnel within the program promote respect for commonalities and differences among people within their historical and cultural contexts.

Suggested Evidence and Documentation:

1. Vision statements, goals, and objectives related to access, diversity, and inclusion
2. Training plans and agendas for personnel and/or students
3. Lists of programs and curriculums related to access, diversity, and inclusion
4. Policies, procedures, and/or handbooks (specifically statements against harassment or discrimination)
5. Facilities accessibility audit
6. Assessment results such as participation rates, demographics, campus climate, and student needs
7. Recruitment Efforts for Future Students

5.1 Inclusive Educational and Work Environments.

The mathematics program encourages participation in the university's Celebration of Culture for both faculty and students. This is a campus wide event each year that focuses on the cultures represented at MACU. All mathematics full-time and adjunct faculty comply with policies and laws to ensure equality of opportunity and access, such as MACU's Human Resource policies and applicable Title IX regulations.

5.2 Implementing Aspects of Access, Diversity, and Inclusion

The full-time mathematics faculty maintain office hours on campus, and encourage students to reach out in the evenings by text, zoom, or facetime to ensure the students understand the material covered in class. Office hours are posted outside each faculty office and are replicated on each syllabi and in the News section for each course in D2L.

Standard 6: Leadership, Management, and Supervision

Overview Questions:

1. To what extent are academic program leader(s) viewed as and held responsible for advancing the departmental mission?
2. What opportunities and barriers are present for academic program leader(s) as they seek to fulfill the academic program mission?
3. How do academic program leaders advance the organization?
4. How do academic program leaders encourage collaboration across the institution?
5. How are academic program leaders accountable for their performance?
6. How have academic program leaders empowered personnel and engaged stakeholders?

6.1 Leadership and Supervision

- Minimum requirement to meet substandard: Display how the program's director incorporates data and information in decision-making.
- Additional information about the substandard:
    - The program's leaders provide management and supervision, lead strategic planning and program advancement; incorporate sustainable practices in the design of programs, services, and facilities; advocate for representation in strategic planning processes at departmental, divisional, and institutional levels.
    - Program supervisors incorporate institutional policies and procedures in the development of strategies for recruitment, selection, professional development, supervision, performance planning, succession planning, evaluation, recognition, and reward of personnel.
    - The program's supervisors consult with institutional HR personnel to access and receive education and training that influence successful performance of personnel.
    - The program's supervisors work with personnel to develop plans for scholarship, leadership, and service to the profession and institution.

6.2 Strategic Planning

- Minimum requirement to meet substandard: Provide the strategic plans for the past three years.
- Additional information about the substandard:
    - Strategic planning processes support ongoing assessment activities that improve student learning, development, and success.
    - Strategic planning processes develop, adapt, and improve programs and services in response to the needs of changing environments, populations served, and evolving institutional priorities.
    - Strategic planning processes result in a vision and mission that drive short- and long-term planning.

Suggested Evidence and Documentation:

1. Periodic reports, contracts, and personnel memos
2. Annual reports by program leaders
3. Program leader resumes, including additional professional involvement
4. Strategic and operating plans
5. Needs assessment of program constituents
6. Professional Development of Faculty

6.1 Leadership and Supervision

The mathematics program falls under the leadership of the Chair of the School of Mathematics. The chair report, located on the MACU Assessment site, is an annual report that states the vision for the School of Mathematics and the annual summary of the "State of the program". The attached report shows the latest two reports for the School of Mathematics in which the mathematics program falls under.
Program Analyses-School of Math

6.2 Strategic Planning

Strategic planning is an annual event for the whole university to work within our schools to develop both long range and short range goals to improve each program within the school. The plans are assessed at the end of the academic year and new plans are written for the upcoming academic year. These are fluid documents and can be changed throughout the year as new goals are needed and new data becomes available. Weekly WIG meetings with our school allows for new goals to be established and new ideas to be nurtured.

The strategic plans for the School of mathematics are attached:
4DX Notebook for 2021-22

4DX Notebook for 2020-2021

SPU Notebook for 2019-2020

Standard 7: Human Resources

Overview Questions:

1. In what ways are personnel qualifications examined, performance evaluated, and recognition provided for exemplary performance?
2. How are professional development efforts designed, how do they support achievement of the academic program mission, and how do they prepare and educate staff on relevant information?
3. How has the staffing model been developed to ensure successful academic program operations?
4. How does the academic program engage graduate interns and assistants, student employees, and volunteers?

7.1 Staffing and Support

- Minimum requirement to meet substandard: Show evidence of the program having the personnel necessary to achieve its mission and goals.
- Additional information about the substandard:
    - The program identifies and hires the qualified level of staffing necessary to achieve its mission and goals.
    - The program's professional personnel either hold an earned graduate or professional degree in a field relevant to their position or possess an appropriate combination of educational credentials and related work experience.
    - The program's personnel receive training, including specific training on policies, procedures, and laws related to the programs and services they support, when hired and professional development throughout their employment.

7.2 Employment Practices

- Minimum requirement to meet substandard: The program's leaders maintain copies of up-to-date resumes/curriculum vitae for all currently employed personnel and ensure personnel have written position descriptions.
- Additional information about the substandard:
    - The program's leaders implement recruitment and selection/hiring strategies that demonstrate a deliberate effort to diversify the workforce.
    - Personnel have written performance goals, objectives, and outcomes for each performance cycle and are used to plan, review, and evaluate work and performance.

7.3 Paraprofessional Personnel / Student Workers

- Minimum requirement to meet substandard: If the program uses paraprofessional personnel and/or student workers, show documentation of performance reviews.
- Additional information about the substandard:
    - Paraprofessionals working in the program are carefully selected, trained, supervised, and evaluated by personnel who possess applicable educational credentials, work experience, and have supervisory experience.
    - The program's leaders accommodate the dual roles paraprofessionals may have as both student and employee.
    - The program's leaders offer flexible scheduling options as needed by the student employee.

Suggested Evidence and Documentation:

1. Operating policy and procedure manuals/statements for program and institution
2. Organizational chart(s)
3. Personnel handbook, position descriptions (including student employees, volunteers, and graduate students), expectations, and performance review templates
4. Annual reports, including data on student utilization and staff-to-student ratios
5. Association or benchmark reports on operations and staffing
6. Student and staff personnel profiles or resumes, including demographic characteristics, educational background, and previous experience
7. Reports on personnel, including student employees and volunteers, employment experiences
8. Training agendas and schedules
9. Statement of staffing philosophy
10. Professional development activities
11. Minutes from staff meetings at which human resources related standards were discussed and addressed

7.1 Staffing and Support

The School of mathematics is comprised of two full-time faculty members

Carol Fowlkes, Ph.D. Professor/Chair of the School of Mathematics/Program
B.S. and M.Ed, MidAmerica Nazarene University; Ph.D. Oklahoma State University
Coordinator for Secondary Mathematics

Triston Herron, M.DA Assistant Professor/Data Analyst
B.S. Mid-America Christian University, M.S. Southern New Hampshire University

Adjunct Faculty:
Allen Dukes, M.S. Adjunct faculty

Haleigh Watson-Wilkes M.Ed. Adjunct faculty

The mathematics program has been developed so that upper division courses are on an every other year rotation and currently can be taught with current full-time and adjunct faculty. MACU provides professional development opportunities in faculty meetings, Dine 'N' Data, and in school initiatives like MCore GiANT leadership training. There is also an on-boarding process that includes professional development for our current and newly-hired adjunct faculty. Faculty also report any additional professional development that they attend on our 4DX notebooks each academic year.

7.2 Employment Practices

Copies of the up to date CVs for all faculty are on file and available to the School Chair through the VPAA's office. Policies related to faculty duties and expectations are documented in the

Faculty Handbook. The school chair is notified through Paycor of any interested math adjunct faculty inquiries.

All faculty write performance goals, objectives and outcomes annually, which are used to plan, review and evaluate work and performance. The Performance review process is done on an annual basis at the end of the academic year. They cover the areas of Teaching, Scholarship, and Service. Each faculty member will meet with the School Chair to review the Performance Review completed by the faculty member and then the faculty members will meet with the Academic Dean and the VPAA to review the accomplishments and to talk about new goals for the upcoming year.

Standard 8: Collaboration and Communication

Overview Questions:

1. With which relevant individuals, campus offices, and external agencies must the academic program maintain effective relationships? Why are these relationships important, and how are they mutually beneficial?
2. How does the academic program maintain effective relationships with program constituents?
3. How does the academic program assess the effectiveness of its relations with individuals, campus offices, and external agencies?

8.1 Collaboration

- Minimum requirement to meet substandard: Show evidence of collaboration with other MACU programs/departments to improve student experience.
- Additional information about the substandard:
    - The program's personnel collaborate and consult with institutional leaders, faculty, individuals, and departments essential to the success of the program.
    - The program collaborates to meet the needs of students and other constituents, and disseminates information about programs and services.
    - The program refers students and other constituents to appropriate resources when assistance is needed beyond the program's scope.

8.2 Communication

- Minimum requirement to meet substandard: Show evidence of the program communication to attract students.
- Additional information about the substandard:
    - Provide evidence from the past three years of what the School or Program has done to attract future students in outreach and promotional activities.
    - The program's promotional and descriptive information is accurate and free of deception and misrepresentation.
    - The program has and follows procedures and guidelines consistent with institutional policy for dissemination of relevant information in a timely manner to all constituents.

Suggested Evidence and Documentation:

1. Promotional material (brochures/sources of information about the program, catalogs, brochures, staff and student handbooks)
2. Media procedures and guidelines
3. List and description of relationships with internal and external partners
4. Minutes from meetings/interactions with key constituents

8.1 Collaboration

The School of Mathematics collaborates with other University Schools and departments to meet its educational goals. The program of mathematics, specifically, collaborates with many schools because it is a core discipline for the University general education program. To that end, collaboration with the Chair of the School of General Education is essential.

Over the past three years there has been extensive collaboration with the School of Science to write proposals for various NSF grants and USDA DLT grants. We were awarded two USDA DLT grants focusing on distance learning for specific rural elementary schools and high schools. One of the NSF grants that were written but not awarded were the S-STEM grant which was a collaborative effort with Arkansas University and Dr. Ceballos.

8.2 Communication

MACU's Bachelor of Science in Mathematics degree is promoted on its website https://www.macu.edu/degrees/bachelors/mathematics/. The website displays admission requirements, job opportunities with this degree, expectations, and course requirements. Math majors are advised by the Chair of the School of Mathematics to expedite enrollment processes and to collaborate about future job opportunities.

Counseling services are also provided to math majors experiencing personal difficulties through campus Student Life.

Standard 9: Ethics, Law, and Policy

Overview Questions:

1. What is the academic program's strategy for managing student and personnel confidentiality and privacy issues?
2. How are ethical dilemmas and conflicts of interest identified and addressed?
3. How are ethics incorporated into the daily management and decision-making processes of the academic program?
4. What are the crucial legal, policy, and governance issues faced by the academic program, and how are they addressed?
5. How are personnel instructed, advised, or assisted with legal, policy, and governance concerns?
6. How are personnel informed about internal and external governance systems?

9.1 Ethical Statements and Practice

- Minimum requirement to meet substandard: Show evidence of the program using and applying ethical statements.
- Additional information about the substandard:
    - The program reviews and adopts appropriate standards of ethical practice including those of applicable professional associations.
    - The program has clearly defined and documented ethical statements addressing conflicts of interest, or appearance thereof, by personnel in the performance of their work, and management of institutional funds, operations, or tasks that have legal implications.
    - The program reviews internal policies and procedures at least every three years. The creation and revision of policies and procedures are informed by available evidence, and policies and procedures that inform the management of higher education.
    - The program addresses issues surrounding scholarly integrity including purchasing or obtaining permission to use copyrighted materials and instruments. References to copyrighted materials and instruments include appropriate citations.
    - The program and the program's personnel perform duties within the scope of their position, training, expertise, and competence.
    - The program and the program's personnel comply with ethics, laws, regulations, policies, and procedures that relate to its respective responsibilities and that pose legal obligations, limitations, risks, and liabilities for the institution as a whole.

9.2 Communication of Ethical and Legal Obligations

- Minimum requirement to meet substandard: Show evidence of the program communicating ethical and legal obligations to constituents.
- Additional information about the substandard:
    - The program educates new personnel to relevant ethical standards, statements of ethical practice, and related institutional policies and procedures.
    - The program's personnel provide students and constituents with information about student privacy rights and personnel's disclosure obligations.

- The program adheres to institutional policies and procedures regarding sexual misconduct, harassment or activity that demeans persons, and workplace violence or an intimidating, hostile, or offensive environment.

Suggested Evidence and Documentation:

1. Program code or statement of ethics
2. Ethics statements from relevant academic program professional associations
3. Personnel policies, procedures, and/or handbooks
4. Codes of conduct
5. Operating policies and procedures
6. Operating policies and procedures related to human subjects research (i.e., Institutional Review Board)
7. Minutes from meetings during which staff reviewed and discussed ethics
8. Emergency procedures
9. Contracts and memoranda of understanding (MOUs)
10. Copies of related laws and legal obligations

9.1 Ethical Statements and Practice

The culture of the University and the School of Mathematics by extension includes standards of ethical conduct in carrying out the school's mission. Mathematics full-time and part-time faculty, like all MACU faculty, sign a written contract obligating them to the university's expectations for ethical conduct as outlined in the Faculty Handbook and "personal, religious, and moral conduct as shall be above reproach." Faculty and students are expected to obey all applicable federal and state laws and live a lifestyle consistent with the school's Wesleyan Christian values. The School of Mathematics complies with federal regulations regarding the Federal Educational Rights and Privacy Act (FERPA) and is routinely trained in FERPA compliance. More details concerning how student conduct is governed are available in the policies set forth in the student handbook. All faculty, staff, and students must also comply with the university's Academic Honesty and Integrity Policy and Title IX.

Standard 10: Financial Resources

Overview Questions:

1. What is the funding strategy for the academic program, and why is this the most appropriate approach?
2. How does the academic program ensure fiscal responsibility, responsible stewardship, and cost-effectiveness?
3. If applicable, how does the academic program go about increasing financial resources?
4. What structures exist to ensure compliance and responsible stewardship, management, and use of fiscal resources? How are limitations or gaps in these structures mitigated?

10.1 Funding

- Minimum requirement to meet substandard: Show evidence of program determining with administrative leadership what funding is necessary.
- Additional information about the substandard: The program has the funding that is necessary to accomplish its mission and goals.

10.2 Financial Planning and Management

- Minimum requirement to meet substandard: Provide the budget submissions for the past three years.
- Additional information about the substandard:
    - In establishing and prioritizing funding resources, the program conducts comprehensive analyses to determine unmet needs of the unit; relevant expenditures; external and internal resources; and impact on students and the institution.
    - The program uses the budget as a planning tool to reflect commitment to the mission and goals of the program and of the institution.
    - The program manages funds in accordance with established governmental laws and institutional policies, procedures, and guidelines.
    - The program demonstrates responsible stewardship and use of fiscal resources.
    - Provide the last three years of strategic planning and budgetary evidence related to the program.

Suggested Evidence and Documentation:

1. Budgets and the budget process
2. Financial policies and procedures
3. Financial statements and audit reports
4. Student fee administration and allocation process (if applicable)
5. Financial statements for grants, gifts, and other external resources
6. Program Strategic Plans and Budgets

10.1 Funding

The School of Mathematics budgeting process begins with an Excel spreadsheet completed by the Chair of the school to assess the needs of the school and the Mathematics Degree Program. Adjunct faculty are the largest line item in the budget. Considering the standard course load of 12 hours per full-time faculty, the chair then determines the number of adjunct instructors needed to staff the remaining mathematics courses. The chair also budgets for a Federal Work Study Academic Assistant. Once the process is completed, the budget requests are then sent to the Vice President of Academic Affairs and the CAS Dean for their consideration. Following the perusal of the budget request, any necessary changes or negotiations in consultation with the chair are made before the budget is sent to the CFO for final approval. Following this process, the School of Mathematics requested the hiring of a full-time Data Analytics program director and Triston Herron was hired in the fall of 2022.

The linked sheets below detail the most recent three years of the School of Mathematics budgeting:

2019-20 School of Mathematics budget

2021-21 School of Mathematics budget

2021-22 School of Mathematics budget

Standard 11: Technology

Overview Questions:

1. How is technology inventoried, maintained, and updated?
2. How is information security maintained?
3. How does the academic program ensure that relevant technology is available for all who are served by the program?
4. How does the academic program use technology to enhance the delivery of programs, resources, services and overall operations?
5. How does the academic program utilize technology to foster its learning, development, and success outcomes?

11.1 Systems Management

- Minimum requirement to meet substandard: Provide evidence of the program's technology.
- Additional information about the substandard:
    - The program has current technology to support the achievement of its mission and goals.
    - The program ensures that personnel and constituents have access to training and support for technology use.
    - The program backs up data on a cycle established in partnership with the institution's information technology department.

11.2 User Engagement

- Minimum requirement to meet substandard: Provide evidence of the program using its technology to accomplish its mission.
- Additional information about the substandard:
    - The program uses technology to enhance the delivery of programs and services for all constituents.
    - The program ensures that technology addresses constituent needs.

11.3 Compliance and Information Security

- Minimum requirement to meet substandard: Provide evidence of the program's compliance with MACU standards on information security.
- Additional information about the substandard:
    - The program has policies on the appropriate use of technology that are clear and easily accessible.
    - The program has updated websites and techniques of communication that provide information, including sensitive information, to meet the needs of all constituents in secure, accessible formats.

Suggested Evidence and Documentation:

1. Information technology policies and procedures
2. Equipment and hardware inventory and replacement cycle
3. Software inventory and update cycle
4. Back-up plan and systems failure emergency protocol(s)
5. Contracts, manuals, and user guides for internet, telephone, database, application, and other systems vendors
6. Technology needs assessment; usage and access data

11.1 Systems Management

The MACU library constitutes the largest learning resource available to math majors. The library features state of the art technology including Apple computers that are capable of running Windows as well. Professional librarians are responsible for the operation of all aspects of the library, assisted by trained support staff and student employees who provide over seventy hours of service per week. There is also a 24-hour live chat option available through the website to access library assistance continuously. The library includes a large computer lab suitable for use as a classroom that is equipped with 24 computers networked to a laser printer. All computers in the library, and on campus, feature high-speed Internet connectivity through both wireless and Ethernet networks. The library contains over 40,000 print volumes, over 153,000 electronic books, and over 32,400 online periodical titles including some titles (such as the Professional Development Collection) specifically aimed at Teacher Education. There are also over 4,100 online government documents and some print periodical titles maintained for browsing purposes. The library participates in the OK-Share state-wide library circulation system as well as Interlibrary Loan (ILL), an international system for sharing of library resources.

In addition to the C.E. Brown Library computer lab, more stationary computer labs are available for SOM students in Fozard Hall. A computer lab is dedicated to mathematics with math specific technology. Computers in this lab feature technology such as Geometer's Sketchpad and Calculus in Motion. The instructor's computer features this software with SMART Board technology on Sympodium computers. Finally, computers are available in the Student Center, and feature high-speed Internet connections and can be used by candidates for research, web browsing, and messaging purposes. MACU students also have free school e-mail accounts, Internet availability in the dormitories, and wireless Internet on the entire campus.

All full-time faculty members are furnished with a computer, networked to one or more printers, and Internet access. Software assistance is provided through the university's Department of Information Technology. MACU utilizes Desire 2 Learn (D2L) as its LMS, and all faculty are required to maintain current grades, news items, attendance, and contact information on D2L for the courses they teach. Technological support is available to students and faculty for hardware and databases (Jenzabar, MACU Portal, etc.) through IT helpdesk requests. The information technology department also assists with online and hybrid course design and provides one-on-one instruction as needed. Digital LCD projectors, digital cameras, WebCams, Responseware technology, and virtual reality headsets can be checked out through the MACU library for faculty to use in multimedia presentations and/or to demonstrate the integration of technology for their students. Training on the use of these technologies is provided through professional development opportunities scheduled in conjunction with faculty meetings, or through IT/Curriculum Services available upon request. In cases where electronic information is of a private or confidential nature, the university's single sign on system, Onelogin, protects the integrity of this information.

During COVID, IT provided Ipad and specific presentation software (Apple Pencil) to allow whiteboard learning with students to allow visual display of problems being worked out.

Standard 12: Facilities and Infrastructure

Overview Questions:

1. How are facilities inventoried and maintained?
2. How does the academic program integrate sustainable practices?
3. How does the academic program ensure that facilities, workspaces, and equipment are considered in decision-making?
4. How is the academic program intentional about space allocation and usage?

12.1 Design and Use of Facilities and Equipment

- Minimum requirement to meet substandard: Display the program's facilities, its workspace.
- Additional information about the substandard:
    - The program's facilities are intentionally designed to engage various constituents, promote learning, provide accessible and safe spaces, and protect the security and privacy of records.
    - The program's facilities and equipment are inspected on an established cycle and are in compliance with codes, laws, and established practices for accessibility, health, safety, and security.
    - The program develops sustainable practices for facilities use.

12.2 Work Space

- Minimum requirement to meet substandard: Show how the program's personnel are able to safeguard the privacy of their work.
- Additional information about the substandard: The program's personnel have equipped and well-maintained workspaces designed to support their work and responsibilities.

12.3 Equipment Acquisition

- Minimum requirement to meet substandard: Show how capital acquisitions are part of the program's normal budgeting process.
- Additional information about the substandard:
    - When acquiring capital equipment, the program takes into account expenses related to regular maintenance and life cycle costs.
    - The program incorporates sustainable practices when purchasing equipment.

Suggested Evidence and Documentation:

1. Facilities and equipment inventory and usage data
2. Facilities audit and plans for renovations, additions, and enhancements
3. Facilities use agreements or memoranda of understanding (MOUs)
4. Capital projects, if applicable
5. Structural designs or maps to show space allocation
6. Images of the space

12.1 Facilities and Infrastructure

The mathematics program has adequate facilities, equipment, and budgetary resources to fulfill its mission and offer quality programs. The education wing of Fozard Hall includes classrooms, science lab, two computer labs, and a science lab. Kennedy Hall houses an additional science laboratory and an additional computer lab. Classrooms support the use of information technology in instruction by being equipped with SMART Board technology, a teacher dedicated computer, and video projection equipment.

All faculty members have individual furnished offices equipped with computers and high-speed Internet connectivity through both wireless and Ethernet networks. Computer labs are located on campus and are available to students and faculty. One lab (classroom) is used primarily by mathematics faculty where math majors utilize computers with loaded math software for classroom use and for modeling technology integration. A curriculum library is located nearby including peer-reviewed journals. The library features an additional lab with Apple computers, the computers most commonly used in most public schools.

The Office of Information Technology is always quick to support the needs of the mathematics program with current math-specific technologies needed. As an example, most mathematics courses are taught in FH 112 and Kennedy Hall basement computer lab and IT has provided a computer with Sympodium and SMART notebook technology for presentation.