

BS Mathematics CPR Index (AY22-23)

- Department Chair Report
- IEB Review
- Academic Dean Response
- Provost Response



Comprehensive Program Review

AY 2022 – 2023

Institution: Middle Georgia State University

Academic Program: BS in Mathematics

College or School: School of Computing

Department: Mathematics and Statistics

CIP Code: 270101

Date of Last Internal Review: 3/2018

Faculty Completing Report: Richard Kilburn

Current Date: 12/11/2022

5 Year Enrollment by Campus and Graduation Trends

Enrollment

Campus	Fall 2018	Fall 2019	Fall 2020	Fall 2021	Fall 2022	5 YR Growth	Fall 2018 compared to Fall 2022 only
Macon	44	36	25	11	9	-32.75%	-80%
Cochran	10	10	12	4	10		
Warner Robins	3	3	5	1	1		
Dublin	1		1				
Eastman							
Online	10	3	13	35	27		
Off Campus	1				2		
Total	69	52	56	51	49	-8.20%	-29%

Graduates

- For data consistency, the fiscal year is in which the degree was awarded. For examples, academic year 2019 includes degrees conferred in Summer 2018, Fall 2018, and Spring 2019.

AY 2018	AY 2019	AY 2020	AY 2021	AY 2022	5 YR Growth	AY2018 compared to AY2022 only
8	3	5	6	9	2.99%	13%

Narrative

The Bachelor of Science in mathematics program exists to educate students to employ mathematical thinking and techniques to solve a diverse array of problems. These skills serve as the foundation for students to pursue (1) careers in industry or government, (2) graduate education in mathematics, or (3) teach mathematics at any level from 6th through 12th grade. Students pursuing a Bachelor of Science in mathematics are provided options of degree concentrations to align their education with their desired endeavor.

The mission of the Bachelor of Science in mathematics program aligns with the missions of the entities above us in several ways. The program strives to diversify the educational outcomes and delivery methods for students to ensure the program prepares them for the future they desire. These initiatives directly match with the priorities of the School of Computing. The program is also constantly adapting to trends in industry and secondary education to better utilize resources for student learning. The program requires students to address unique problems in mathematics and provide a poster presentation on the topic. This requirement invites students to engage in modern mathematics in a controlled setting with instructor guidance. These actions align with Middle Georgia State’s core values of Adaptability, Stewardship, Engagement, and Learning.

The Bachelor of Science in mathematics program began as a four-year degree in fall of 2006, which means it is in its 16th year of existence. Being true to the concept of adaptability, the program began as a degree in applied mathematics. This program organically changed into a pure mathematics degree over several years. In the fall of 2020 further adaptations were implemented to create concentrations in general mathematics (what was historically the pure math program), mathematics education, and statistics. Moreover, a minor in statistics was created to allow students to supplement their learning in other fields with the analytical skills of statistical analysis.

There is no body to which the Bachelor of Science program in mathematics can apply for accreditation. However, the program would certainly qualify for accreditation if one were to exist. The program employs a plethora of instructional methods to ensure high quality student learning. The concentrations for general mathematics and secondary education are delivered face-to-face while the concentration in statistics is fully online. Due to the statics concentration being available online, it is possible for students in the other concentrations to complete many courses online. The online sections employ several learning techniques including, but not

limited to, instructor-created videos, publicly available multi-media, announcements, online learning programs, virtual assessment proctoring, and synchronous video-enhanced instruction.

As mentioned above, several changes have been made to the program since the last review: creation of statistics track, return of the secondary education track, and the creation of the statistics minor.

There have never been explicit benchmarks for progress for the Bachelor of Science in mathematics program. Success of the program is achieved in multiple facets:

- Graduates are successful in finding employment or graduate school acceptance. While these data are not directly tracked, it would be quite difficult to do so. Many of our graduates secure admission to graduate schools or employment in the industrial, government, or education sectors.
- Diversity of faculty impact upon student learning.
 - Approximately 64% of the department faculty possess a terminal degree.
 - Approximately 82% of courses taught by department faculty in the last five years have been courses that count towards Area A of Core or learning support.
 - Faculty within the department represent the entire spectrum in race, religion, political views, gender, sexual orientation, and socioeconomic backgrounds.

The culture within the department is one of respect and harmony of each of these differences. This culture extends beyond the faculty to ensure students are treated equitably and justly within their courses, regardless. The faculty constantly collaborate to identify ways of reaching students where they are comfortable to elevate their learning.

- Adaptability of the program remains ongoing. Discussions with students are continuing to ensure the outcomes of the program align with the desired outcomes of the students.
- Student mentorship remains a priority within the program. Many interested mathematics majors are provided the opportunity to engage in undergraduate research under faculty guidance. In a few instances, this scholarship has led to peer-reviewed publication of student work.

There are currently several discussions about how the program should proceed. Two initiatives are underway and three more in development. First, we had submitted a proposal to modify the Statistics Minor by including courses from a wider variety of fields and reducing the number of credit hours required from 18 to 15. We have also submitted a proposal for a certificate in general mathematics and one in applied statistics that can be utilized to recruit and retain dual enrolled students. In development are a transition strategy for students with an Associate's in mathematics, a dual-degree concentration, and an industry-focused concentration. The department is working to identify avenues to provide USG students who complete an associate in mathematics at two-year institutions the opportunity to continue

their education in our program. Additionally, the initial discussions have begun on creating new concentrations that specifically meet regional needs. The second objective is to develop a dual-degree concentration partnership in mathematics and engineering with USG institutions that offer engineering degrees as the central Georgia region does not have such a USG school. In addition to attracting traditional students, this may also provide opportunities for the students who participate in the Georgia Academy to increase their academic accomplishments while simultaneously pushing them to their goal. The third objective is to develop a concentration within mathematics that contains an industry focus. Provided that Robins AFB is a significant partner within the region, a concentration that provides students with both industry knowledge and mathematical training would enable our graduates to make significant contributions both on Robins AFB and with the many government contractors in the area. Both concentrations address the shifting trends seen within the program. Fewer students are seeking to study mathematics alone. It seems that combining a math degree with another discipline, through either a dual-degree with engineering or an interdisciplinary approach with industry applications, will ensure graduates possess the tools necessary for career success.

IEB's Comprehensive Program Review Rubric and Evaluation

Date Reviewed: March 30, 2023

Program Reviewed: BS Mathematics

<p>Contextual Notes: Summarize any demographic or environmental factors described in the introduction that might significantly impact assessment of the program</p>

Area of Focus	Exemplary Area	Satisfactory Area	Area of Concern	No Evidence	Notes
<p>Enrollment</p>			<p><i>This program has negative enrollment trends and weak credit hour production</i></p>		<p>5-yr annual average: -8.2% 5-yr change: -29%</p>
<p>Graduation Trends USG benchmark:</p> <p>Bachelor's Degrees: 10 graduates/year</p> <p>Graduate, Associate's or Certificates: 5 graduates/year</p> <p><small>Programs falling under these benchmarks are designated as "low performing"</small></p>			<p><i>Three year rolling average does not meet USG minimum benchmark for degrees conferred; the program is "low performing" by USG definition</i></p>		<p>5-yr annual average: 2.99% 5-yr change: 13% 3-yr average: 7 graduates/year</p>

IEB's Comprehensive Program Review Rubric and Evaluation

Program Strengths of Note:

This is a long established program since its inception in 2006. This program has been adapting and reshaping itself into more competitive program. As mentioned in the narrative of the review, the program keeps investing efforts to rebuild the program into more competitive in the current environment.

Areas of Concern:

This program has shown continued decline of enrollment over the last five years despite its make-up in online program. The average number of graduates of the program is below the USG minimum benchmark for degrees conferred indicating the program is 'low performing.'

Other Comments:

None

IEB's Comprehensive Program Review Rubric and Evaluation

Date Reviewed: March 30, 2023

Program Reviewed: BS Mathematics

Contextual Notes: Summarize any demographic or environmental factors described in the introduction that might significantly impact assessment of the program

Area of Focus	Exemplary Area	Satisfactory Area	Area of Concern	No Evidence	Notes
Enrollment			<i>This program has negative enrollment trends and weak credit hour production</i>		5-yr annual average: -8.2% 5-yr change: -29%
Graduation Trends USG benchmark: Bachelor's Degrees: 10 graduates/year Graduate, Associate's or Certificates: 5 graduates/year <small>Programs falling under these benchmarks are designated as "low performing"</small>			<i>Three year rolling average does not meet USG minimum benchmark for degrees conferred; the program is "low performing" by USG definition</i>		5-yr annual average: 2.99% 5-yr change: 13% 3-yr average: 7 graduates/year

IEB's Comprehensive Program Review Rubric and Evaluation

Program Strengths of Note:

This is a long established program since its inception in 2006. This program has been adapting and reshaping itself into more competitive program. As mentioned in the narrative of the review, the program keeps investing efforts to rebuild the program into more competitive in the current environment.

Areas of Concern:

This program has shown continued decline of enrollment over the last five years despite its make-up in online program. The average number of graduates of the program is below the USG minimum benchmark for degrees conferred indicating the program is 'low performing.'

Other Comments:

None

Comprehensive Program Review Report
Academic Program Name: BS in Mathematics
College or School: School of Computing
Department: Mathematics
CPR Review Schedule AY22-23

The Bachelor of Science in Mathematics program has undergone a comprehensive review, which has identified certain areas of concern. Enrollment numbers for the program have been lower than anticipated, and the graduation rates are critically low as well. These trends have brought the program under review and have made it a topic of discussion within the academic forecasting deliberations of the institution and the system office.

It is imperative that we address these challenges to ensure the program's viability and alignment with the evolving needs of our students and the demands of the job market. In light of the current circumstances, it is essential to explore strategies that can boost enrollment and improve graduation rates.

The department should further consider targeted recruitment efforts to attract more students to the program. This may involve developing effective marketing campaigns, fostering partnerships with local schools and educational institutions, and highlighting the diverse career opportunities available to mathematics graduates. Additionally, providing comprehensive academic support and advising services can help students navigate the program successfully and enhance their likelihood of graduating on time.

Furthermore, it is crucial to review the curriculum and teaching methodologies to ensure they are engaging, relevant, and conducive to student success. Incorporating experiential learning opportunities, promoting interdisciplinary approaches, and leveraging technological tools can enhance the learning experience and motivate students to pursue their mathematical studies with enthusiasm.

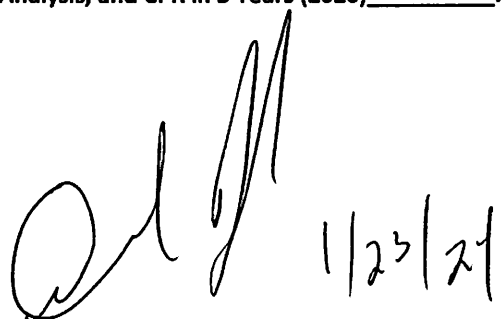
By addressing the challenges related to enrollment and graduation rates, the Bachelor of Science in Mathematics program can regain footing. The department's dedication to reviewing and improving these areas is commendable and will contribute to the program's growth and impact, aligning it with the expectations of our students and the broader academic community.

Categorical Summation

Check any of the following to categorically describe action(s) the institution will take concerning this program.

- Program MEETS Institution's Criteria
 - Program is critical to the institutional mission and will be retained.
 - Program is critical to the institutional mission and is growing or a high demand field and thus will be enhanced.
- X Program PARTIALLY MEETS Institution's Criteria and will be re-evaluated in **Annually during the assessment cycle, subject to Academic Forecast Analysis, and CPR in 3 Years (2026)**_____.
- Program DOES NOT MEET Institution's Criteria
 - Program will be placed on a monitoring status.
 - Program will undergo substantive curricular revisions.
 - Program will be deactivated.
 - Program will be voluntarily terminated.
 - Other (identify/add text):

Provost or VPAA Signature: Date:



A handwritten signature in black ink, followed by the date 1/23/21 written in a similar style.