

Executive Summary for the Mathematics Department

Bachelor of Arts, Bachelor of Science in Mathematics and Secondary Education, Bachelor of Science in Mathematics, and Bachelor of Science - Applied Mathematics Concentration

2015-2016

Major Findings of the Program's Quality and Productivity

- Overall program quality is deemed to be **satisfactory**, with strengths noted in the quality of faculty and quality of service.
- Overall program productivity is found to be **below average**, though comparable to mathematics programs at other State Universities in the University System of Georgia.
- The program is **very strong**, in terms of cost effectiveness.

List of Recommendations for Improving Program Quality

- Revise the program curriculum. Formulate the design around a few big ideas that get reinforced in multiple courses. Incorporate the use of more technology. Incorporate at least one upper division course sequence.
- Decrease reliance on part-time faculty.
- Improve facilities to encourage higher levels of engagement through practices like collaborative learning, opportunities for student research, and use of technology.
- Incorporate more opportunities for students to use technology in the program.
- Develop a faculty workload policy that emphasizes enhanced learning opportunities for students, and supports the department mission and goals.
- Develop a recognition system that incentivizes faculty productivity.

List of Recommendations for Improving Program Productivity

Key recommendations for improving program productivity include the following:

1. Keep abreast of the career and personal goals of math majors and continually build program, co-curricular, and pedagogy elements that facilitate students' attainment of their goals.
2. Provide a more nurturing environment for all students, especially pre-service math teachers.
3. Make research experiences a regular part of the program for all students.
4. Hire additional faculty to bolster student recruitment efforts, eliminate program bottlenecks, and increase undergraduate research opportunities.
5. Hire additional student assistants to serve as peer leaders in courses that students find more challenging.
6. Engage in professional development that encourages reflection on how to provide research opportunities in mathematics for students at all levels within the major.
7. Provide tutors for students in upper level or transition courses to help reduce the number of times students must repeat these courses.

Conclusion about the Program's Viability at CSU

The Mathematics Program at Columbus State University is a cost-effective, viable program, with its FY2015 cost per credit hour running about 63% of the university average. However, changes should be sought to increase program enrollments and degrees awarded, and meet the needs of current students. While our number of degrees awarded has been low, it also has been rising, and is now comparable to the numbers of degrees awarded by other State Universities in the University System of Georgia. Since approximately 85% of the credit hours produced by the Mathematics Department are in service courses, the incremental cost of operating the major program is minimal, and justified. Moreover, the Mathematics program is vital to sustain a supply of qualified high school math teachers for our region.

Program Improvement Plan

Initiatives to be implemented:

- Research the current employment market and student interests to identify curriculum changes that will attract more students and make them employable.
- Revise the program curriculum to provide an appealing applied math option for students not seeking to pursue graduate studies.
- Develop a suitable faculty workload plan and recognition system that emphasize enhanced learning opportunities for students, and support the department mission and goals
- Seek an additional tenure track faculty member who can contribute to areas of strategic need.
- Develop a plan for creating a nurturing environment for all students in the mathematics program, regardless of their program or career plans.
- Develop a plan to provide research or internship experiences for all students in the program.
- Employ a full time lecturer to provide capacity in the General Education core and Learning Support mathematics.
- Improve student retention in the program by hiring student assistants as Peer Leaders to support students in strategically chosen courses.

Summary Recommendation and Supporting Rationale (completed by dean and VPAA)

We recommend modifying the mathematics program to attract more students with an appealing pathway for its students to learn how to apply math in business, industry, and government. The department should conduct a retreat in fall 2016 to formulate specific steps to implement the indicated Program Improvement Plan.