**Department/Program Review Summary**

**2018-19**

**Department:** Math (MAT)

**Date of Review:** March 22, 2019

**Review Team Members and Titles:**

Dave Collins, Provost

Jennifer Kostic, Associate Provost

Jared Cutler, Assistant Provost of Accreditation and Assessment

Tricia Tuffey, Academic Advising, Enrollment Advisor

Gregory Goodhart, Columbus State Community College

Lori Zakel, College Credit Plus Faculty Coordinator, and Professor Communication

Cari Gigliotti, Faculty, Chemistry

Amanda Romero, Chair/Professor, Design

Rana Peake, Enrollment Operations, Manager of Training & Orientation

**Department Members Present:**

Tony Ponder, Dean, Science, Mathematics and Engineering

Karl Hess, Chairperson, Mathematics

Faculty and Staff:

Kerri Bentjen

Najat Baji

Moez Ben-Azzouz

Craig Birkemeier

Patti Bromer

Brian Cafarella

Wendy Cheng

Kay Cornelius

Joseph Czupryn

Juanita Darden-Jones

David Ericson

David Hare

Eric Kraus

Glen Lobo

Jungmi McBride

Kinga Oliver

Laura Phelps

Len Ruth

David Stott

Viet Tran

Jesse Williams

James Willis

**Commendations:**

* There are few indicators of the quality of an academic department that are as crucial or as significant as its concern for students. This is a department with an unsurpassed concern for helping students succeed – not just the students in its own programs, but every student at Sinclair. The Review Team was amazed at the amount of work that has been done in the past five years by faculty in the department who had one overriding goal: to help more students succeed in their math classes. It is all the more impressive that this work has been done at a time when the former Developmental Math Department was being incorporated into the Math Department, a merger that appeared to be as smooth as could be expected for a transition such as this. With so much change, this department has maintained a laser focus on helping more students succeed, and while a tremendous amount of work has been invested in the initiatives the department has undertaken, it has made an incalculable difference in the lives of many students who are seeking a better future. First and foremost, the department deserves high praise for its untiring devotion to helping students at Sinclair learn math better.
* This was an exceptional Program Review self-study – it clearly communicated the many achievements of the department in ways that were well-organized, concise, and supported by data. The entire department was involved in its preparation, organized into committees that developed different sections of the self-study, but still this process nonetheless resulted in a coherent, unified document in a single voice. This self-study can serve as an example of how the Program Review self-study should be developed, both in terms of the approach that was taken in writing it, and in terms of the final product.
* This department has long benefitted from exceptional leadership, both with the previous chairperson and with the current chairperson. But it is also true that the effectiveness of their leadership has been maximized by the hard work and dedication of the faculty in the department. The long list of faculty awards provided in the self-study is a testament to the exceptional qualifications and skills of those who teach in the department.
* Few departments at Sinclair can point to as many extensive initiatives that have been undertaken for the purpose of increasing student success. The announcement that the department had received the 2019 Innovation of the Year award was timely, but unsurprising given the culture of innovation that has been carefully cultivated in the department over the past decade. In recent years curriculum has been revised, new courses have been created, the number of developmental math courses students take to reach college level has been reduced (without a concomitant decrease in college level success), Booster courses have been developed, the approach to placing students in math courses has been rebuilt from the ground up – in so many ways the department has been incredibly dynamic in implementing change that is designed to improve student success. They have also collected and analyzed data that demonstrates the positive impact of these changes.
* This is a department that is exceptionally responsive to the needs of other departments across campus. The self-study listed multiple examples of courses that had been created or revised to meet the needs of other departments across campus. This department demonstrates a concern that the mathematics education provided in other departments is appropriate to the needs in that field of study. In fact, a few years ago the department chairperson instigated a project working with the Provost’s Office wherein the math requirements of every academic program at Sinclair was examined, and in a number of cases recommendations were made for curricular changes that would bring math requirements into better alignment with the specific needs of the subject area. This is a department that truly goes above and beyond in meeting the needs of other departments and the students they serve.
* This department has a reputation for quality and innovation that is well-known among the campus community, and in fact state-wide. Other entities in Ohio look to this department as an example of innovation and forward-thinking in mathematics education.
* A handful of departments are essential to the success of College Credit Plus (CCP), and this department is one of the most crucial. The high level of support the department has provided to the CCP program in recent years has been an important component of the program’s success. Without question, Sinclair’s CCP initiatives would not be where they are today without the support of this department, and the Review Team hopes that the department is aware of how deeply this is appreciated across the campus community.
* The department has also been highly supportive of the Advanced Job Training initiative. Not only was a new course created (MAT 0025) specifically for the incarcerated population, but because that population doesn’t have access to computers, the department had to develop new paper and pencil activities for students in the course. The department showed a tremendous amount of commitment to a population who needs additional support.
* Considering that many students struggle with math, the department’s success rates are impressive. What is more impressive is the amount of effort that the department puts into increasing those success rates.
* The department did an outstanding job of prioritizing goals and recommendations from the most recent Program Review, and provided comprehensive updates on the progress that has been made in the past five years. It has also developed an excellent set of aggressive - but achievable - goals for the next five years.
* In terms of evidence of program quality from sources outside of the department, the department did a great job of presenting statements from various stakeholder groups attesting to the quality of the support they receive from the Math Department. The self-study also listed a number of examples of community outreach initiated by the department.
* Development of Open Educational Resources (OERs) hold tremendous promise in terms of cost savings for students, and the department should be commended for exploring the use of OERs. However, the department should also be commended for the cautious, thoughtful approach it has taken, attempting to find ways to reduce costs of course materials without sacrificing tools that are essential to their success in math.
* Special mention should be made of the department’s work with the ALEKS placement test. The concern with appropriate placement, and the effort put into identifying a placement tool that would correctly place students in addition to providing modules that would prepare them to retake the exam is indicative of how the department always makes student success a priority.
* While each department at Sinclair is required to assess at least one program outcome each year, this department assesses all of its program outcomes every year. This has allowed the department to track a steady yearly increase in assessment scores for the outcome “Effectively Communicate a Mathematical Proof to a Varied Audience.” Results of yearly assessment are shared with faculty in Spring department meetings and have been used to guide revisions to grading rubrics, and to underscore the importance of conceptual learning. The department is in the process of changing two of its program outcomes, which demonstrates a recognition that program outcomes should be reviewed periodically and revised where appropriate. In addition, the Review Team noted some overlap between General Education outcomes and program outcomes, and the new program outcomes appear to be more distinct from the general education outcomes that all departments at Sinclair are already required to assess. The use of common exam items to provide assessment data across multiple sections of a course is excellent assessment practice.
* The Review Team was very impressed with the reports of the development of Math Lab software by faculty in the department. This department possesses the expertise to develop tools that will help enhance student learning, and it is encouraging to see that expertise being utilized.
* This department is peerless in its approach to hiring and onboarding adjunct faculty. While recruitment of adjunct faculty is a challenge in many departments, this department reports no such difficulties, due to a large extent to the chairperson’s efforts managing the application system. The chairperson is asked to present his approach to adjunct recruitment each year as part of the New Chair Academy because his work is such an excellent example of how it can be done effectively.
* The Review Team was impressed with the amount of data that the department provided in the self-study. Much of the narrative was supported by evidence the department had collected, analyzed, and presented. This was a data-rich Program Review self-study.
* Finally, the Review Team noted that the department appeared to take the Program Review process seriously as an opportunity for continuous improvement. It appeared that the department expressed a strong interest in exploring several of the suggestions made during the meeting with the Review Team. The department appeared to be open to feedback that would allow it to improve the already stellar work it is doing.

**Recommendations:**

* One of the most intriguing suggestions to come out of the meeting with the Review Team came from a member of the team who is external to Sinclair, whose institution allows students during the first week to study in an emporium model setting, retake the placement test, and if they score high enough, enroll in a section of the next highest course that begins in the second week of the term. The department expressed a great deal of interest in this practice, and the Review Team strongly encourages the department to explore adoption of a similar practice whereby students testing below college level math would have a week to prepare in the Math Academy to retake the placement test, and potentially move up to the next math course.
* The department has been wise to move slowly and cautiously in the adoption of OERs, attempting to ensure that students would receive the same level of support for learning. The Review Team strongly encourages the department to move forward with the development of OERs, continuing to use a cautious, measured approach without becoming stagnant in this effort.
* During the meeting with the Review Team, there was some discussion of identifying students who are close to graduation and encouraging them to complete their degrees prior to transfer. It appears that the chairperson has done some work in this regard in the past. The department is encouraged to continue identifying students who are close to completion, utilizing degree audit tools and soliciting help from Research, Analytics, and Reporting (RAR) and Academic Advising as necessary. Efforts should also be made to collect information from students who transfer prior to graduation to determine what steps might be taken to encourage them to complete their programs of study prior to transfer.
* Sinclair will soon begin development of a backfill strategy. There has been a considerable amount of discussion regarding redeploying Building 1 as a “Math Building” The department should develop specific plans for this possibility, suggesting new learning supports that could be developed with additional space and resources. When work on the backfill strategy develops in earnest, the department should be ready to communicate its vision for a “Math Building” and the resources that would be required. Plans for computer classrooms and labs, an adjunct faculty work area, a student lounge, and other supports should be enumerated and described in sufficient detail to allow them to become part of the backfill strategy if approved. In addition, the suggestion was made for development of a Science, Mathematics, and Engineering (SME) lab that would allow for interdepartmental utilization and collaboration – a proposal for this resource should be developed for possible inclusion in backfill.
* Credit hours for specific courses in comparison to similar courses at other institutions was discussed briefly in the self-study – the department should continue to review the number of credit hours associated with math courses in comparison with other institutions and make adjustments where necessary to better ensure seamless transfer.
* As it moves forward with the development of new program outcomes and strategies for assessing those outcomes, the department should involve the Division Assessment Coordinator where necessary to develop assessment approaches and specific strategies for improvement of student performance on those outcomes.

**Overall Assessment of the Department’s Progress and Goals:**

This was an exceptionally well done Program Review self-study, but then this is an exceptional department. In the past decade this department has become one of the most innovative, dynamic departments on campus, and has developed and implemented changes that have had tangible and dramatic impacts on student success. The hard work and dedication of the faculty have changed the lives of students who might otherwise have been unable to attain their educational goals, with a remarkable increase in the number of students reaching college-level math without sacrificing success once they enroll in those courses. Their efforts have resulted in demonstrable, documented improvements in a subject area that most people find challenging, and the department should feel great pride in what they have accomplished. The Review Team was deeply impressed by the achievements of the department and wishes to express its appreciation on behalf of Sinclair and the students it serves. Few departments have such influence over the success of students in other departments to the extent that the Math Department does – because all associate degree programs have a math requirement, what this program does potentially impacts each program’s students. The conscientious, dedicated, and thoughtful approaches to increasing success that this department has implemented have had far reaching positive consequences.

The department did an exceptional job of documenting work on goals and recommendations from the last Program Review and has selected some exciting goals for the next five years. While the Review Team made a number of recommendations as part of this process, the team believes these recommendations are all things that the department has already identified as areas of improvement, and in many cases is already working to address. While the Program Review process is designed to facilitate continuous improvement, this is a department that is already heavily engaged in continuous improvement on its own. It is the Review Team’s belief that the recommendations provided serve to emphasize the excellent work the department is already doing, and do not really point the department in any direction it isn’t already moving.

It is the Review Team’s hope that the commitment to innovation and dedication to improving student learning that appears to motivate everything the department does will always be part of its culture, and will always serve as an example to other departments at Sinclair.

**Institutional or Resource Barriers to the Department’s Ability to Accomplish Its Goals, if any:**

* The issue of outdated classroom equipment was discussed at some length in the meeting with the Review Team. This is not the only department who has noted that, for example, desks are old, outdated, and not conducive to active, collaborative classroom learning strategies. Sinclair may want to consider developing and implementing a strategy to update and improve its classroom equipment, with particular attention to desks, tables, and chairs.
* The innovative work of online Math Lab tools being developed by faculty was discussed at length – what can Sinclair do to support and encourage efforts such as these?
* Marketing resources are in high demand at Sinclair. Unfortunately, the demand exceeds what the Marketing Department is able to provide. What approaches can be developed to meet the needs of departments at Sinclair without exceeding available Marketing resources?