**Remedial Math**

# SVCC Cross-Disciplinary (Developmental Math) Program Review Template

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| **Program (degree and related certificates):** Remedial Math |
| **Related program courses that are part of the data set**:<br>MAT 070, Fundamentals of Mathematics<br>MAT 075, Beginning Algebra<br>MAT 076, Geometry<br>MAT 081, Intermediate Algebra<br>(MAT 072, MAT 074, MAT 080 have been removed from the course offerings at Sauk since late 2013. They are mentioned here and appear in the data, since they are accepted as prerequisites for other courses offered at Sauk.) |

## DEVELOPMENTAL MATH Program Objectives

**Prompt**

1. What are the objectives/goals of this program or programs?
2. To what extent are these objectives being achieved?
3. How does the program contribute to other fields and the mission of the college?
4. Describe any quality improvements or modifications made since the last review period.

**Response to prompts**:

1. The goal of the developmental mathematics program is to support students through the mathematics remediation process. We meet students at their ability level, through the help of the placement process. The goal is to equip students with the skills to successfully complete, not only the developmental mathematics sequence, but also aide their future mathematics coursework.

2. The mathematics department continue toward realization of the goals mentioned above. A new placement test is being utilized to help identify students' abilities to better place them in the developmental mathematics program.

3. The developmental mathematics program teaches students the fundamental mathematics skills necessary for many college and career paths. These skills can enrich students' lives inside and outside of the classroom (i.e. personal finance, helping their child with math, etc…).

4. Since the last program review many pilots and changes have been implemented to improve the quality and effectiveness of the developmental mathematics program. These changes include: program restructuring, a new placement testing system, and editing delivery methods.

The college has removed the developmental mathematics program from the Developmental Education department and incorporated it into the mathematics department. This permits the faculty to discuss all math courses and improvements as part of the annual operational planning process. It also gives the math faculty, the content experts, authority to guide the developmental math curriculum.

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The college has also reinstituted the Developmental Education committee designed to support the quality and improvement of the developmental education programs. The committee is composed of a variety of college faculty and staff, which gives the developmental math program access to input and contributions from college professionals outside of the math department.

Due to the elimination of ACT placement products in 2016, the math department selected the ALEKS math placement test. The ALEKS placement test allows for students to take a practice placement test prior to taking the proctored placement test in the Sauk testing center. By taking the practice or the proctored placement test, students open a remediation tool inside the ALEKS software. This software allows students to self-remediate through online help features and assessments tailored to their initial results. The goal of this process is that the student can self-remediate, take the proctored placement test and place higher than the student would have without the practice attempt, at no cost to the student.

The college piloted a self-paced, modularized, lab delivery method which would allow students to move through the sequence more quickly. This pilot did not increase the success rate of student promotion (A, B, or C required as pre-requisite for next course) over that of the traditional lecture method of delivery. This combined with the implementation of the ALEKS placement test, which give students access to self-remediation, marked the end to this pilot.

A summer bridge course was offered Summer 2017. This course would have helped students scheduled to take Math 081 attempt to place into college level math. However, there was little interest, so the course did not run.

Through the cooperative work of the math department, the developmental education committee, and college administration, MAT 075 and 081 were removed from online delivery methods. While these were popular options, the success rate was less than half that of the traditional lecture or lab delivery methods. With the installation of the ALEKS placement test, students can self-remediate through the online ALEKS program, so the need for the online sections is covered.

## DEVELOPMENTAL MATH Program Need

**Prompts**:

1. Detail how the offerings are sufficient and aligned to meet the needs of students across all programs served and support academic programs (e.g., tutoring co-requisite, summer bridge, AE-ICAPS, foundational math).

The mathematics faculty have collaborated with the Learning Commons Tutoring Center, Developmental Education Committee and administration to identify options to continue to meet the needs of students. As detailed above, placement testing, delivery methods, bridge courses, and scheduling continue to be explored as ways of meeting the needs of students.

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## DEVELOPMENTAL MATH Program Cost Effectiveness

**Prompts**:
1. What are the costs associated with this program?
2. How is the college paying for this program and its costs (e.g. grants, etc.)?
3. If most of the costs are offset by grant funding, is there a sustainability plan in place in the absence of an outside funding source? Please explain.
4. Based upon this review, what steps are being taken to offer curricula more cost-effectively?
5. Are there needs for additional resources? If so, what are they?

**Available Data Sources**: Table 3A, Table 3B

**Response to prompts (respond to all prompts)**. In your narrative, please refer to the data sets or evidence you have chosen to support your case.
1. As shown below in Table 3B, the program has had a positive net income every fiscal year 2013-2017.

**Table 3B: Program Revenue**

| Row | Revenue Item | FY2013 | FY2014 | FY2015 | FY2016 | FY2017 | 5-year Totals |
|---|---|---|---|---|---|---|---|
| x | Tuition from program classes | 257,610 | 230,634 | 250,044 | 244,044 | 190,503 | 1,172,835 |
| y | Fees from program classes | 9,026 | 10,924 | 11,386 | 11,594 | 9,511 | 52,441 |
| z | Apportionment (estimated) | 15,951 | 19,967 | 18,625 | 17,619 | 13,068 | 85,230 |
| aa | Total Revenue | 282,587 | 261,525 | 280,055 | 273,257 | 213,082 | 1,310,506 |
| bb | Net Income (Row aa- row w) (negative numbers indicate a deficit) | 115,181 | 142,413 | 140,070 | 162,869 | 42,108 | 602,641 |

2. Tuition and fees from program classes more than pays for the offerings in the program.

3. The program is not being funded by grants.

4. The developmental course sequence was restructured to streamline the program. This is not only a cost saving for the college, but also the students in the program. The faculty has also reviewed and consolidated course textbooks and online options in order to keep material costs down and save students money.

5. As detailed below in "Responses to Program Challenges", there is a need for a leadership position in the program. This position would have to be compensated though stipend or release time.
In our operational plan the last two years, the department has also requested another math faculty member be hired. This faculty member would teach college and developmental math

courses. Another faculty member would decrease the reliance on part-time faculty and allow more flexibility and reliability of program offerings.

## DEVELOPMENTAL MATH Program Quality

**Prompts**: Respond to all prompts.

1. How is the college working with high schools to reduce remedial needs?
2. What is the college doing to develop and implement co-requisite or pathway models to ensure students placing into developmental education finish the sequence within one academic year?
3. Provide a description of the remedial/developmental sequence. A graphic representation is okay.
4. Are there any alternative delivery methods of this program (online, flexible-schedule, team-teaching, accelerated, etc.).
5. What innovation has been implemented or brought to this program?
6. To what extent is the program integrated with other instructional programs and services?
7. Have partnerships been formed since the last review that may increase the quality of the program and its courses? If so, with whom?
8. How well do completers of remedial/developmental courses doing in related college-level courses?
9. What professional development or training is offered to instructors and/or staff to ensure quality programming?
10. List any barriers encountered while implementing the program.

**Available Data Sources**: Table 1A, Table 1B, Table 2, Table 4A, Table 4B, Table 5A, Table 5B, Table 6, additional data provided from the strategic planning dashboard

**Response to prompt (respond to all prompts)**. In your narrative, please refer to the data sets or evidence you have chosen to support your case.

1. The college is working with local high schools on the 2018-2019 implementation of a 4th year, math pathways course. The successful completion of this quantitative pathways course during senior year would place the student directly into: MAT 240 - Elementary Statistics, MAT 106 - Applied Mathematics, MAT 115 - Principles of Modern Math, or MAT 110 - Mathematics for Elementary Educators I.

2. The college piloted a self-paced, modularized, lab delivery approach in the developmental mathematics program to encourage students to work through the entire sequence faster. The college has also implemented the ALEKS placement test, which allows for students to self-remediate and place out of developmental math coursework or at least begin at a higher point in the sequence. See above for further details.

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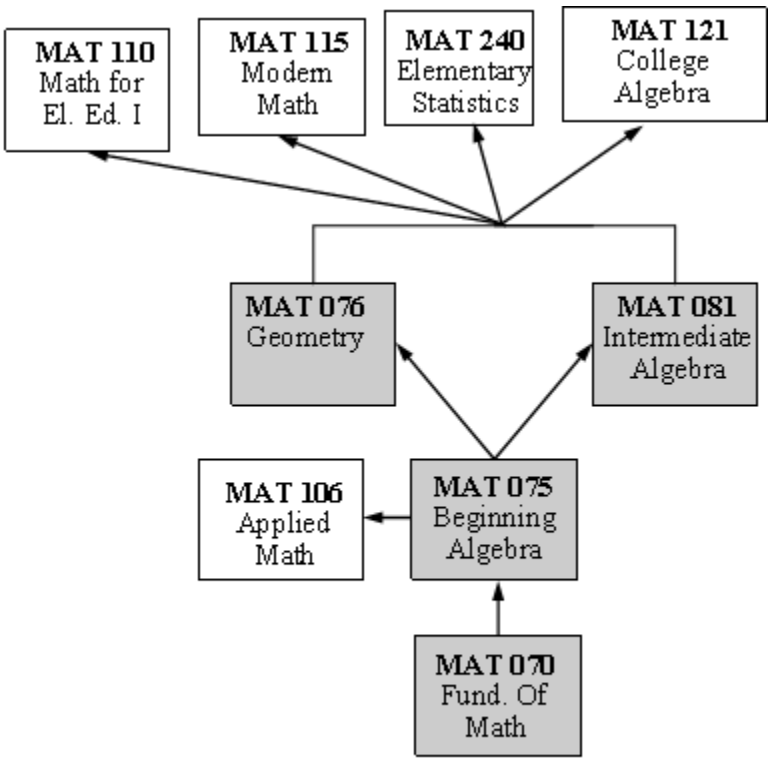


4. A wide variety of delivery methods have been implemented, including: self-paced lab, online, traditional, and traditional with a software component. We have removed the self-paced and the online delivery methods, see above for further details.

5. MAT 070, 075, and 081 all utilize an online software component which allows students access to help features, instructional videos, additional practice problems, and instant feedback on homework and quizzes. Additionally, we have implemented the ALEKS placement testing product. See above for further details.

6. A few of our college level courses, MAT 106, 121, and 240, use the same online software component mentioned above. This consistency allows students coming from the developmental sequence to focus more on learning the course materials, since they don't need to learn a new software for every course.

Faculty also encourage students to visit the Learning Commons Tutoring Center, LCTC, for help outside of office hours. We have a member of the LCTC staff come to each developmental math classroom, describe their services and detail their open hours to the students during the first two weeks of class.

7. The mathematics faculty have been collaborating with the local high school math teachers and ROE as discussed above.

8. Students who complete a portion of the developmental math sequence have an overall 65.7% rate of successful completion, A, B, C & D grades, of a college-level course. Even though D grades are considered successful completion of a college-level course, the department discusses success as A, B & C grades. This is due to many second semester college level courses requiring a C or better in the prerequisite college level course. Ex: A student receiving a D in College Algebra, Math 121 will not be allowed to take Trigonometry, Math 122.

9. Very little professional development or training is available for faculty in the field of developmental college mathematics. Most offerings for this level of mathematics is better aligned to middle school or high school classrooms.

10. There are many barriers to implementing the program. These barriers include, but are not limited to, part-time faculty who teach for a semester and then leave, scheduling program courses to meet the needs of students, piloting changes within the program with little or no improvement in success rates, and student motivation to complete the program courses.

**Focused Questions from the Administrative Review Team (ART)**

**Question 1. How do the high school and SVCC prerequisites and current placement scores prepare students for college-level math classes? Use data to support your thesis.**

Response to question 1 (please refer to any data sets or evidence to support your case)

| Category | Credits | A | B | C | D | A-D |
|---|---|---|---|---|---|---|
| HS classes to enroll in MAT 106 | 255 | 16.50% | 21.20% | 16.50% | 7.10% | 61.20% |
| HS classes to enroll in MAT 110 | 57 | 42.10% | 26.30% | 26.30% | 5.30% | 100.00% |
| HS classes to enroll in MAT 115 | 57 | 10.50% | 21.10% | 36.80% | 10.50% | 78.90% |
| HS classes to enroll in MAT 121 | 556 | 6.50% | 18.00% | 30.90% | 9.40% | 64.70% |
| HS classes to enroll in MAT 240 | 429 | 13.30% | 27.30% | 32.20% | 9.10% | 81.80% |
| ACT/Compass score to enroll in MAT 106 | 36 | 8.30% | 33.30% | 8.30% | 16.70% | 66.70% |
| ACT/Compass score to enroll in MAT 110 | 9 | 33.30% | 33.30% | 33.30% | 0.00% | 100.00% |
| ACT/Compass score to enroll in MAT 115 | 39 | 0.00% | 0.00% | 30.80% | 46.20% | 76.90% |
| ACT/Compass score to enroll in MAT 121 | 56 | 21.40% | 28.60% | 35.70% | 0.00% | 85.70% |
| ACT/Compass score to enroll in MAT 240 | 42 | 21.40% | 14.30% | 28.60% | 7.10% | 71.40% |
| developmental to enroll in MAT 106 | 159 | 9.40% | 17.00% | 22.60% | 7.50% | 56.60% |
| developmental to enroll in MAT 110 | 3 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |
| developmental to enroll in MAT 115 | 51 | 17.60% | 11.80% | 35.30% | 17.60% | 82.40% |
| developmental to enroll in MAT 121 | 232 | 5.20% | 20.70% | 22.40% | 17.20% | 65.50% |
| developmental to enroll in MAT 240 | 156 | 9.60% | 34.60% | 17.30% | 9.60% | 71.20% |

The overall success rates for college-level math courses based on placement method: high school, SVCC developmental math course, and placement scores are 73.2%, 76.8% and 65.7% respectively. Students placing into college-level through high school course work and

placement testing have higher success rates than those who have taken a developmental course prior to taking a college-level course.

The Math 110 success rates can be seen as a factor in the differences in overall success. As seen in the data above, most students taking Math 110, Mathematics for Elementary Educators I, do not need remediation. This fact on its own does not speak to the differences in overall success rates. However, when you factor this together with the 100% success rate in Math 110 over the last 5 years it provides a boost in the overall success rate of non-developmental placement.

**Question 2. Do the math course deliver modes and class scheduling need to be restructured for consistency across the math department and to meet student scheduling needs? Explain.**

Response to question 2 (please refer to any data sets or evidence to support your case):
Course delivery modes and class scheduling have been restructured to improve consistency and meet student scheduling needs, see above.

**Question 3. How successful are students in college-level math classes once they transition from developmental math classes? Use data to support your thesis.**

Response to question 3 (please refer to any data sets or evidence to support your case):
These success rates are discussed in detail above.

**Question 4. Analyze grade distributions within the developmental math program overall, by class, and by instructor type (full-time vs. part-time). What can be done to improve overall student success?**

Response to question 4 (please refer to any data sets or evidence to support your case):

| Category | Count | A-C % |
|---|---|---|
| Taught by full-time faculty | 901 | 41.8 |
| Taught by adjunct faculty | 810 | 55.2 |

Since the last program review, the program has seen the retirement and relocation of several very dedicated part-time developmental math faculty. In their absence, the program/college has experienced several single semester part-time math faculty. There have been some inconsistencies in material coverage, grading and course policies. A faculty leader for this program should help to align the full-time and part-time instruction allowing only prepared students to move on to college level courses.

**Question 5. Should developmental math be taught by a single faculty member who specializes in developmental education?**

Response to question 5 (please refer to any data sets or evidence to support your case):

A single faculty member would not be able to teach all of the developmental math courses. There are too many sections and students for a single faculty member to be a viable option. In addition, some variety in faculty helps address the potential differences in learning and

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| teaching styles. Due to fluctuations in enrollment and course offerings, the current full-time faculty need to cover the full range of developmental and college level courses. |

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| **Responses to Program Challenges.** Every program has challenges it must overcome. This program review process allows Sauk employees to identify those challenges and then create a plan to overcome those challenges. Please describe the program's challenges and the purposed response below. These responses will be added to the Operational Planning matrix found below. |
| **Response to Challenges:**<br><br>The main challenges to the developmental mathematics program are: assessment/grading consistency, adjunct support and leadership.<br><br>These three challenges are interwoven. In order to support our part-time instructors and attain a higher level of consistency in section to section assessment/grading the developmental mathematics program needs leadership. This leadership should be a full-time mathematics faculty member and should receive release time for the following responsibilities. He/she would be the "touch point" for all new full-time or part-time faculty teaching any developmental math courses. This person would be a liaison between the Developmental Education committee, the full-time mathematics faculty, the part-time math faculty, and administration. This person would maintain developmental mathematics materials, under the advisement of the math department, including: a developmental mathematics handbook, course outlines, master syllabi, MyMathLab master courses, and final exams.<br><br>These barriers have been exacerbated within recent years with the retirement and relocation of several very dedicated part-time developmental math faculty. The college has experienced several single semester part-time math faculty. The developmental education committee and the math department have agreed on the need for a new faculty coaching process, which would include college and developmental math materials and procedures. The idea of a developmental math faculty handbook with a pacing guide, course objectives, and other pertinent information has been discussed as a way to mentor newly hired full or part-time faculty. |

**Program Bookkeeping Tasks**

| Task List | Description of Task | Is the task complete? |
|---|---|---|
| **Course outlines** | Please review all course outlines for the courses listed at the top of this document and send it to Curriculum Committee for approval. ALL outlines must go through Curriculum Committee even if no or few changes were made. | X |

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| **Catalog descriptions** | Please review catalog descriptions of the program. If there are changes to the program description, please send it to the Curriculum Committee for approval. | Not applicable |
| **Course descriptions** | Please review course descriptions found in the catalog that are listed at the top of this document. If there are changes to the course descriptions please send them to the Curriculum Committee for approval. | X |

## Reviewer's Final Recommendation

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| Summary Rationale<br>Please provide a brief rationale for the chosen action. | |
| Intended Action Steps<br>What are the action steps resulting from this review. Please detail the timeline and/or dates for each step. | |

| **Signature/Date** | **Program Review Team Member** | |
|---|---|---|
| | | Chair |
| | | Member |
| | | Member |
| | | Member |
| | | Member |

## Remedial Math

**Program Review.** Items from the program review will be entered here. After this program review is complete and approved, transfer (paste and copy) the items below to your FY 2016 Operational Plan.

* Use the origination code PR 2015.

| Origi-nation Code* | Date Activity was Added to this OP (MM/DD/YYYY) | Name(s) of Individual(s) Responsible | Description/Purpose/ Justification of Proposed Activity | Goal/Desired Result from Activity (measurable and under department's control) | Target Completion Date for This Activity (MM/DD/YYYY) | Actual Results from this Activity | Actual Completion Date for this Activity (MM/DD/YYYY) |
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| **Comments**: | | | | | | | |

## Remedial Math

| Program Review Committee & Administrative Review Teams Recommendations |
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| **The following are the recommendations from the Program Review Committee and the Administrative Review Team:**<br>• Administration should conduct an ALEKS utilization study. This study could tell us if and how often students are utilizing the "remediation" portion of the software.<br>• Administration should investigate using summer bridge programs to help students successfully test out of developmental math and into college-level math in the summer in between high school graduation and enrolling at SVCC the following fall semester. ALEKS could possibly be used as a way to help students remediate math deficiencies during this summer bridge program.<br>• Administration and math faculty should investigate using ALEKS instead of Pearson as the supplemental math software in their classrooms.<br>• Investigate having a separate Math Faculty Leader. Currently the Math Department is merged with the Science Department and is led by Brad Smith. This "new" Math Faculty Leader could help with communication with the adjunct and dual-credit math faculty and to create additional consistency between different sections of the same math classes (developmental and college-level), explore best teaching/assessment practices (pedagogy) and professional development to improve class success (A-C grades).<br>• As full-time math faculty retire, explore the possibility of hiring a math faculty member who is dedicated to teaching developmental math.<br>• Administration, including the Institutional Research Office, and Math Department faculty should work together to regularly review data on the effectiveness of math placement strategies. Investigating the use of high school GPA as a placement tool should also be investigated. |
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| **Signature of the Program Review Committee Chair** | |

| President's Recommendation |
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| **The following are the recommendations from the President:** |
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| **President's Signature/Date** | |