

Math Department Comprehensive Program Review

Thursday March 27th 2019

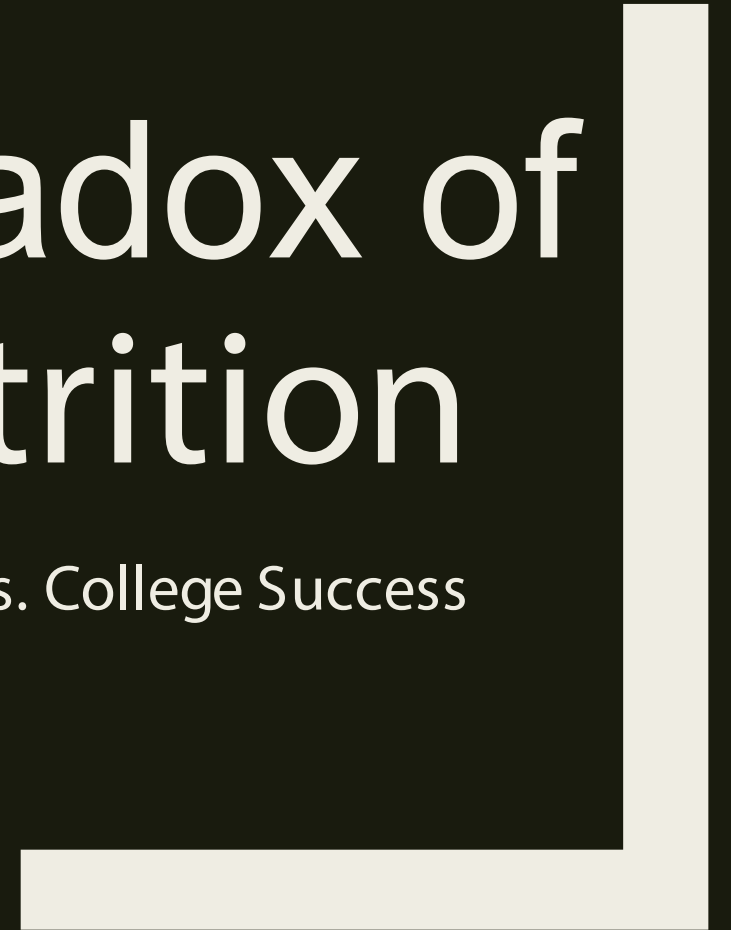


The math program is unique in that it will make or break the comprehensive college redesign as well as the completion agenda. AB705 mandates that all transfer bound students complete transfer level math within two semesters of beginning a math sequence. In addition, the Chancellor's office funding formula incentives this completion occurring within the first two semesters of enrollment. However, according to the office's own research, without significant support and intervention, a significant portion of students, a possible majority in fact, who take a transfer level course in the first semester will fail and need to retake it in the second. Either that, or they will need to take one course below transfer in the first semester and then progress to transfer level in the second.

-- 2018/2019 Comprehensive Program Review

The Paradox of Exponential Attrition

Course Success vs. College Success



SKYLINE COLLEGE STUDENT OUTCOMES

Department(s): MATH (Excludes Summer)

Annual Success and Retention

	Enrollments	Success Count	Success Rate	Withdrawal Rate
2012-2013	4,919	2,917	59.3%	19.9%
2013-2014	5,110	2,971	58.1%	20.6%
2014-2015	5,153	3,094	60.0%	19.3%
2015-2016	5,099	3,222	63.2%	18.9%
2016-2017	4,999	3,080	61.6%	19.4%
Total	25,280	15,284	60.5%	19.6%

3 Levels Below	Persist	2 Levels Below	Persist	1 Level Below	Persist	Transfer Level	Pathway Through Put
60%	80%	60%	80%	60%	80%	60%	6.6%
		60%	80%	60%	80%	60%	13.8%
				60%	80%	60%	28.8%

Two Guided Pathways for Math

SLAM vs. B-STEM

**Statistics and Liberal Arts
Math**

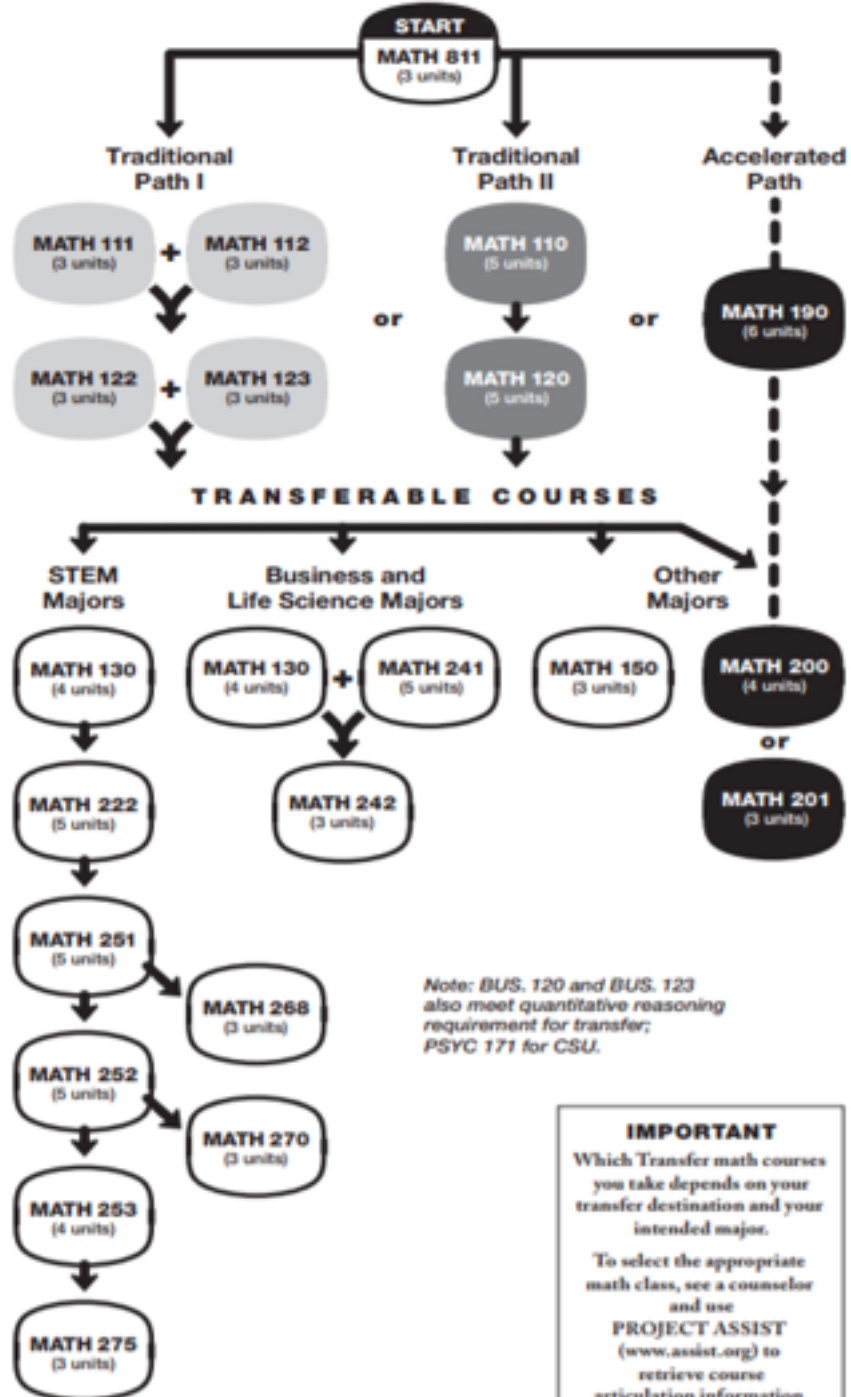
Arts, Language, and
Communication

Society and Education

**Business, Science,
Technology, Engineering, and
Math**

Business, Entrepreneurship,
and Management

Science, Technology, and
Health

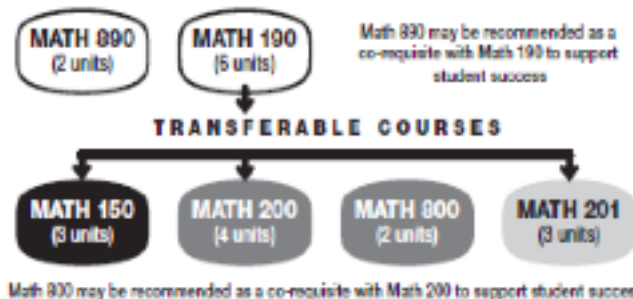


Math Placement

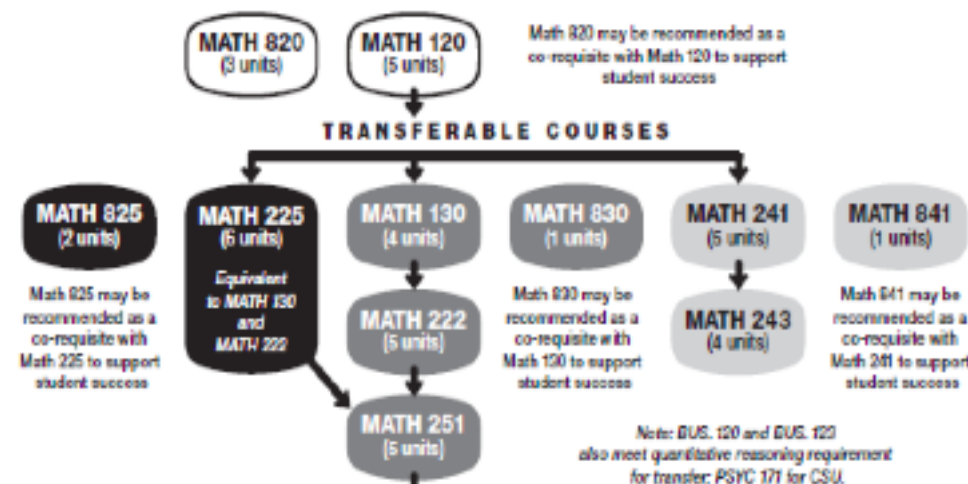
Students may use a variety of measures for appropriate placement into the pathways depicted below.

These include EAP, IB, ELM, SAT, ACT, and AP exam scores; High School Transcripts; and Guided Self Placement. Please see the Assessment Center for more information; call (850) 738-4150, email skyassessment@smccd.edu, or go to Building 2, 1st floor, office 211B.

Statistics and Liberal Arts Mathematics (SLAM) Pathway



Business, Science, Technology, Engineering, and Mathematics (B-STEM) Pathway



IMPORTANT
Which Transfer math courses you take depends on your transfer destination and your intended major.
To select the appropriate math class, see a counselor and use **PROJECT ASSIST** (www.assist.org) to retrieve course articulation information.

Statistics and Liberal Arts Mathematics (SLAM) Pathway

MATH 890
(2 units)

MATH 190
(6 units)

Math 890 may be recommended as a co-requisite with Math 190 to support student success

TRANSFERABLE COURSES

MATH 150
(3 units)

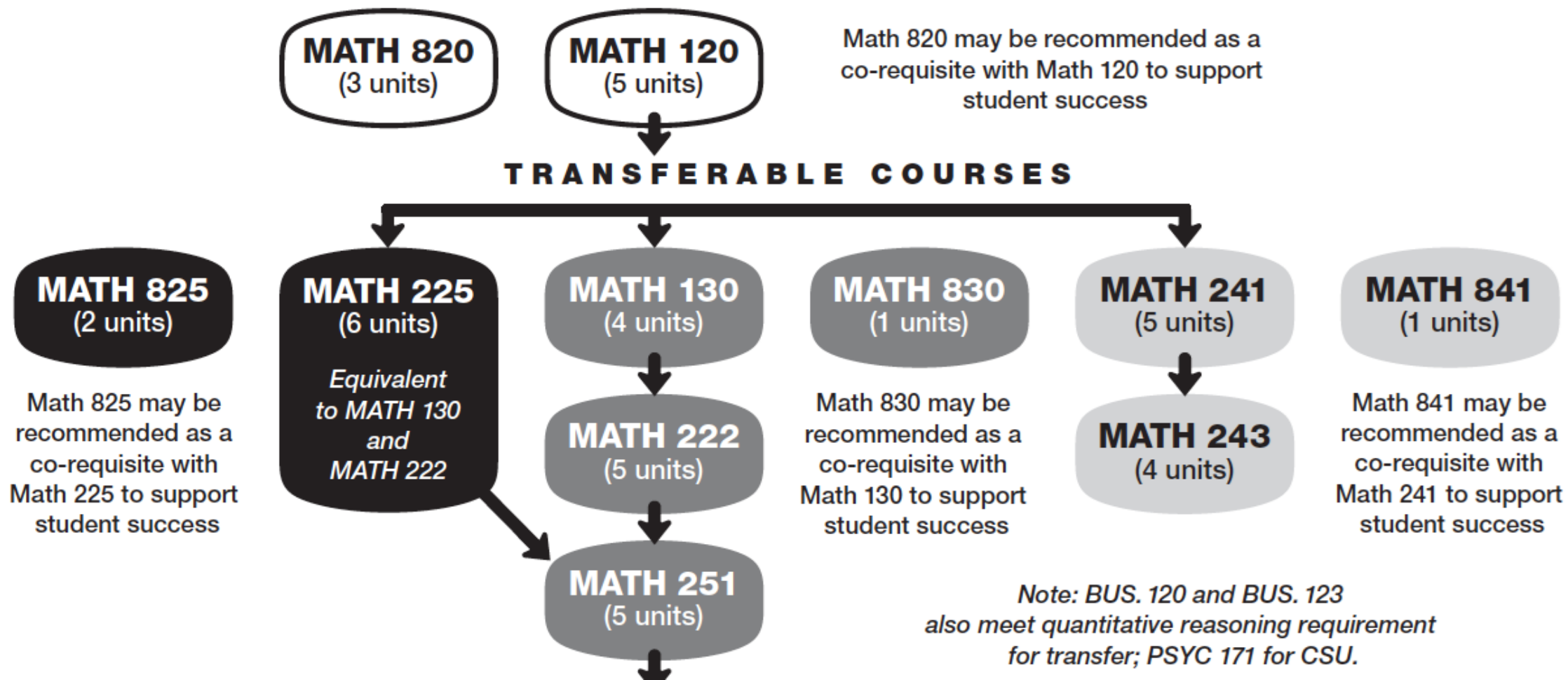
MATH 200
(4 units)

MATH 800
(2 units)

MATH 201
(3 units)

Math 800 may be recommended as a co-requisite with Math 200 to support student success

Business, Science, Technology, Engineering, and Mathematics (B-STEM) Pathway



Multiple Measures Assessment

The End of Placement Tests



Four Multiple Measures of Assessment

1. Transcript Based

2. Self-Guided

3. Counselor Non-Cognitive

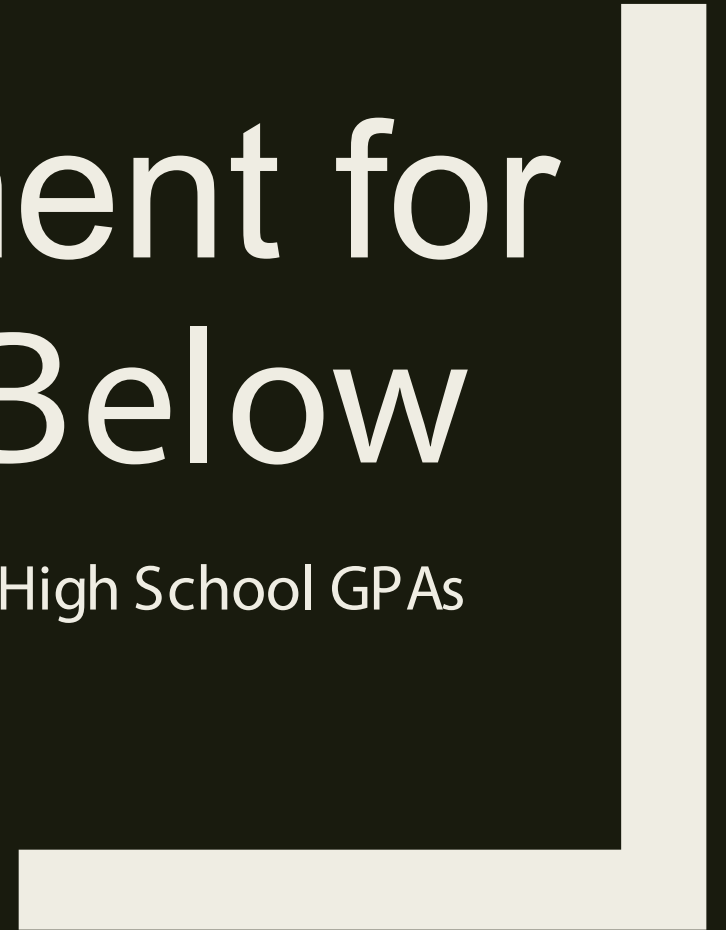
4. In Class

SLAM Level	HSGPA	Default Recommendation	Expected Success Without Corequisite
X	HS Algebra 1 / Integrated Math 2 not taken	Path to Statistics 190	Low
Y	HS Algebra 1 / Integrated Math 2 with a grade less than C-		Moderate
3	Less than 2.3	Math for Elementary School Teachers 150	29%
2	2.3 to 2.9		Statistics 200
1	3.0 or greater	Math in Society 201	75%

B-STEM Level	HSGPA	Default Recommendation	Expected Success Without Corequisite
X	No HS Algebra 2 / Integrated Math 3	Intermediate Algebra 120	Low
Y	HS Algebra 2 / Integrated Math 3 w/ grade less than C-		Moderate
3	Less than 2.6 and No HS Pre-calculus	Trigonometry 130 Path to Calculus 225 Applied Calculus I 241	28%
2	2.6 to 3.3 or Took HS Pre-calculus		53%
1	3.4 or greater or Took HS Calculus		75%

The Argument for Offering 1 Level Below

And Other Options for Students with Low High School GPAs



1 Level Below	Persist	Transfer Level	Pathway Throughput
80%	90%	80%	57.6%
75%	90%	75%	50.6%
70%	90%	70%	44.1%
65%	90%	65%	38.0%

1 Level Below

Need to achieve...

70%-80% Success

90% Persistence

Transfer Level w/ Corequisite

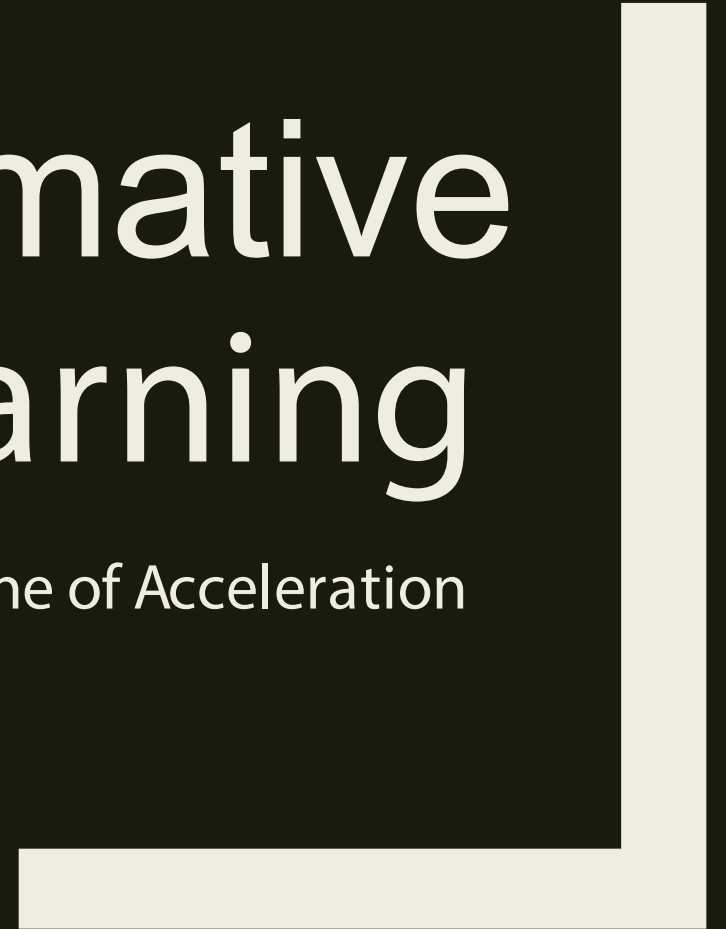
Possibly have...

28%-45% Success

72%-55% Retake

Transformative Teaching and Learning

The Engine of Acceleration



Transformative Pedagogy

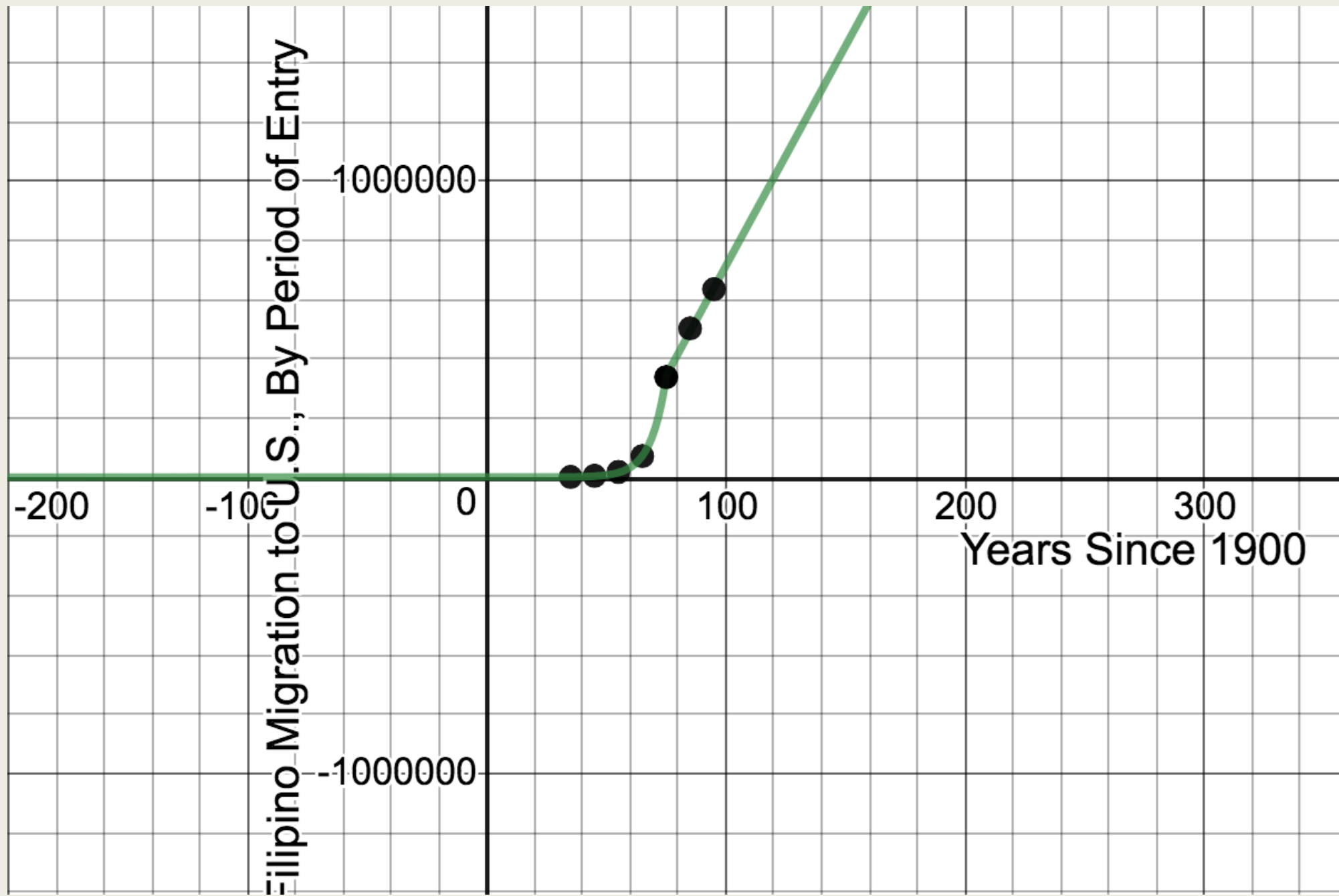
Embraces the limitless potential of all learners in a co-creative, relevant, and innovative environment that fosters curiosity and critical thinking and **gives space to lived historical and cultural identities** to change lives and communities.

-- The Design Team

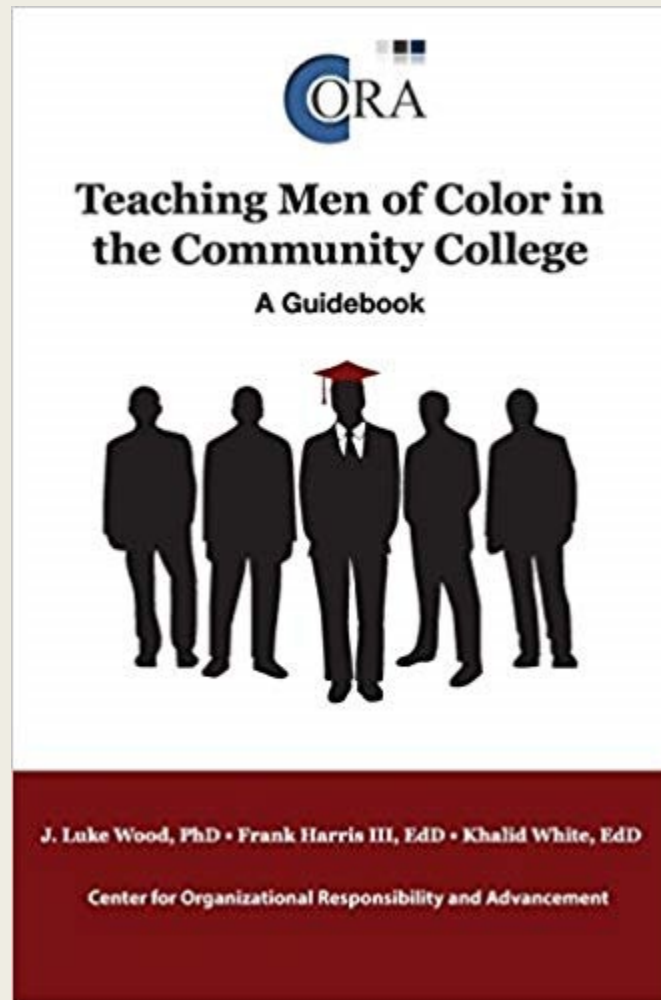
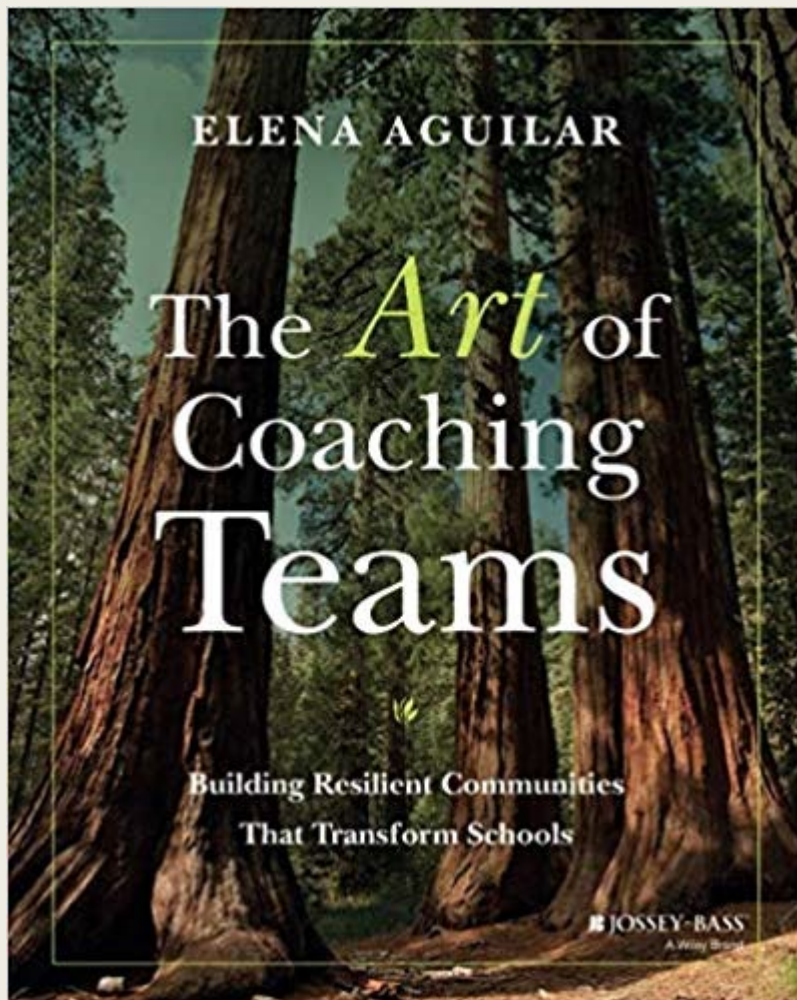
1. Demonstrate critical thinking skills in problem solving across the disciplines and in daily life.
1. Communicate and comprehend effectively.
1. Use knowledge acquired from their experiences at this college to be ethically responsible, culturally proficient citizens, informed and involved in civic affairs locally, nationally, and globally.
1. Demonstrate skills central to information literacy.
1. Demonstrate an understanding of lifelong wellness through physical fitness and personal development.

Math Program Student Learning Outcomes

1. ANALYZE problems in mathematics in order to appropriately choose and correctly apply concepts and techniques.
1. COMMUNICATE solutions in mathematics by using the multiple representations of graphs, tables, symbols, and words.
1. PARTICIPATE in activities that reinforce the use of success strategies while solving problems in mathematics.
1. CREATE mathematical models or hypothesis tests for real-world datasets and evaluate their implications for society.



<https://www.desmos.com/calculator/r016mpqw3y>



Two Math Department Communities of Practice

Iterative Professional Development



SLAM Community of Practice Meetings

Schedule SLAM courses so as to allow the community of practice to meet 1st and 3rd Fridays 10:30am-12:00pm.

Then invite the **ALC and SE meta-major counselors, the TLC Math Instructional Aide, and the Peer Mentors Retention Specialist** to attend.

Finally, identify two meta-major math faculty liaisons within the community.

B-STEM Community of Practice Meetings

Schedule B-STEM courses so as to allow the community of practice to meet 2nd and 4th Fridays 10:30am-12:00pm.

Then invite the **BEM and STH meta-major counselors**, the **STEM Center Math Instructional Aide**, and the **STEM Center Retention Specialist** to attend.

Finally, identify two meta-major math faculty liaisons within the community.

Addressing Skill Gaps

When Transformative Teaching and Learning is Not Enough



Educational Access Center (EAC)

- Students with Modified High School Curriculum
- Non-High School Graduates
- Returning Adults

Directed Learning Activities

- To be used by the EAC, TLC, Math Jam, and students at large

South San Francisco Unified

- Does not require Intermediate Algebra for graduation

Math Jam

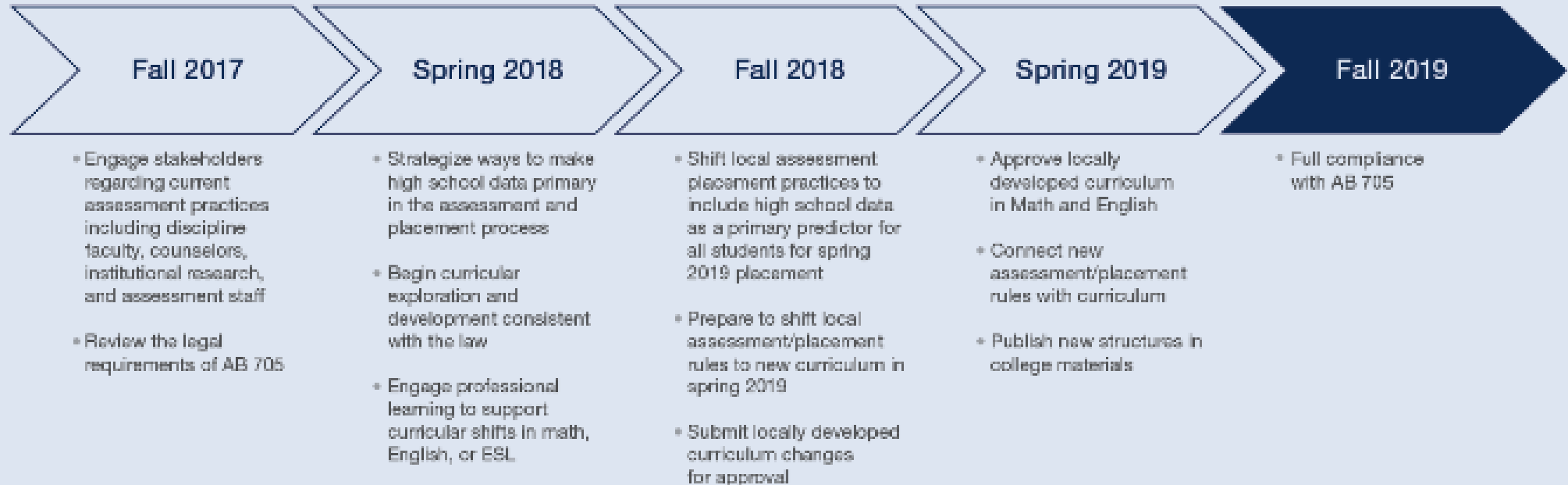
- Needs a scaled up outreach and curriculum overhaul

Chancellor Office Memos

July 11th - December 7th 2018

AB 705 IMPLEMENTATION TIMELINE

For Math and English



AB 705 stresses a maximum one-year time frame, and the “clock” for that curricular design should be no more than 2 semesters (or 3 quarters as applicable). The one-year limit begins once individual students begin taking mathematics and English courses that are part of a sequence leading to transfer-level (either credit or noncredit). **However, the funding formula favors the completion of transfer-level mathematics and English in the students’ first year of enrollment.** This emphasis is supported by a variety of research studies that point to this benchmark as a key completion indicator. Optional preparatory activities offered for credit or noncredit, such as “math jams” or “gear up” programs that include refresher information in English or mathematics as well as college success skills do not count as part of the one-year time frame for AB705 if they are not part of a required course.

-- July 11th 2018 Memo from the Chancellor’s Office

11. Why does the funding formula incentivize the completion of transfer-level quantitative reasoning/mathematics and English in the first year of enrollment, and AB 705 require completion in one year but not necessarily the first year?

AB 705 is a minimum standard of the law, and colleges are required to create the structural opportunity for students to complete transfer-level in one year. However, the student-centered funding formula creates incentives for colleges when students complete in their first year of enrollment. **For funding and educational reasons, colleges will want to try to ensure as many students as possible complete in the first year; however, AB 705 does not require it.**

-- December 7th 2018 Memo from the Chancellor's Office

16. How can colleges fund support needs or professional development in service of students and AB 705?

Colleges can use a variety of funding sources to support the work of implementing AB 705. The colleges' Student Equity and Achievement Program (SEA) funding, which encompasses what was formerly known as Basic Skills, can support this work, as can Guided Pathways funding in addition to general fund dollars. **Colleges should examine the use of SEA funding to ensure that planning and activities are not solely housed in either student services or academic affairs but instead address the needs of the colleges and students holistically.**

-- December 7th 2018 Memo from the Chancellor's Office