

# PROGRAM REVIEW

**Department: Mathematics**



**Date of Program Review: January 31, 2025**

**Prepared by: DeeAnn VanLuyck and Savanna Ashmore**

## TABLE OF CONTENTS

Introduction to Program.....	4
I. Scope.....	4
A. Program Relation to College Mission, Core Values, and Strategic Plan.....	4
B. Program/Discipline Demand/ Need.....	6
C. Program /Discipline Analysis .....	7
D. Program Assessment .....	15
E. CTE Programs Only.....	24
II. SWOT Analysis .....	25
A. Strengths.....	25
B. Weaknesses .....	25
C. Opportunities .....	25
D. Threats.....	25
III. Action Plan .....	26
A. Action Plan.....	26

### **Recommended Timeline**

1. Program Review document will be completed and submitted to the Instruction Office by January 31<sup>st</sup>.
2. Vice President of Academic Affairs and Institutional Effectiveness Support will complete the summary report and send it to faculty by February 15<sup>th</sup>.
3. Vice President of Academic Affairs and Institutional Effectiveness Support will provide feedback to faculty by April 15<sup>th</sup>.
4. The faculty responsible will review the report, provide any follow up information and make comments within seven days of receiving the report.
5. Programs under review may be asked to present a summary of their program findings and an action plan to the Board of Trustees in the following academic year.

# **ACADEMIC PROGRAM/DISCIPLINE REVIEW**

## **Fort Scott Community College**

### ***Introduction to Program***

#### ***I. Scope***

##### **A. Program Relation to College Mission, Core Values, and Strategic Plan:**

**1. How do the goals and measurable objectives for the program/discipline help the college meet its mission, core values, and strategic plan?**

The mathematics department strives to support the mission of Fort Scott Community College by embracing the culture and by reaching out to the local communities with our Math Relays event. All of our instructors work to empower our students in a supportive and safe environment. We work to develop strong relationships with our students and the local communities so they know that we value and respect them. The mathematics department is responsible with all of the college resources that we are given to manage.

**2. What specific goals of the strategic plan are affected by this? Please explain.**

FSCC Strategic Goal #1: Foster relationships with the communities FSCC serves

Strategy 1: Optimize and expand community outreach

Tactic 1.1.2: Identify opportunities for FSCC students, faculty, and staff to volunteer in the community

We brought back Math Relays to campus in October 2024. We had volunteers from FSCC students, faculty, staff, administration, and board members to help us to put on a fun event for local high school students. We received a lot of positive feedback.

FSCC Strategic Goal #2: Cultivate quality enhancements for education and learning

Strategy 2: Maintain compliance with accreditors and oversight agencies

Tactic 2.2.1: Ensure alignment between degree audits, catalog, and KBOR

We are working on switching over to the Math Pathways required by KBOR as it connects to our performance agreement and funding.

FSCC Strategic Goal #2: Cultivate quality enhancements for education and learning

Strategy 3: Increase teaching effectiveness

Tactic 2.3.1: Utilize the assessment process to increase teaching effectiveness

We have been studying our assessment data to improve our teaching effectiveness while offering students a second chance at mastering the course material. More detailed information is provided later in this document.

FSCC Strategic Goal #2: Cultivate quality enhancements for education and learning

Strategy 3: Increase teaching effectiveness

Tactic 2.3.2: Increase professional development opportunities related to teaching and learning

The full-time math instructors are participating in the KBOR professional development opportunities during AY 24-25. DeeAnn is participating in the Kansas section of the Association of Mathematics Teacher at Two-Year Colleges (KAMATYC) and is currently serving as President. There are also virtual professional development opportunities offered by Hawkes Learning Systems each semester.

FSCC Strategic Goal #2: Cultivate quality enhancements for education and learning

Strategy 3: Increase teaching effectiveness

Tactic 2.3.5: Standardize the curriculum across campuses including concurrent courses

As the math department moves over to the Math Pathways, we are working hard to assure we are putting together a quality curriculum that we will share with our current partners in the fall of 2025.

FSCC Strategic Goal #3: Promote Student Success

Strategy 1: Strengthen and enhance student success

Tactic 3.1.2: Communicate with division chairs about scheduling needs

We are working with our division chair, the VPAA, and the advising office to make sure we are scheduling classes at times that are convenient for our students. We had our first meeting on Friday, January 31, 2025. We will continue to meet as needed.

FSCC Strategic Goal #3: Promote Student Success

Strategy 3: Provide holistic support to students

Tactic 3.3.2: Increase the percentage of students who take advantage of tutoring services

The full-time math instructors collaborate with the Student Success Center and TRiO to help identify qualified peer tutors. We announce the availability of peer tutoring multiple times in our classes during each semester. Savanna offers an assignment/extra credit to her students for attending a study session with the peer tutors. We hope to have a representative from both the Student Success Center and TRiO come into our supplemental class as we transition to the Math Pathways in order to promote student success.

FSCC Strategic Goal #5: Promote strategies for employee success

Strategy 1: Support employee professional development opportunities

Tactic 5.1.1: Encourage employee professional development

We have been encouraged to participate in the professional development provided by KBOR. The full-time math instructors are going to be seeking out additional professional development opportunities as we transition to the Math Pathways. We feel supported in this endeavor by our division chair and our VPAA. Our VPAA often attends our professional development webinars so we can have more meaningful discussions about Math Pathways.

## **B. Program/Discipline Demand/Need:**

**If applicable, provide any advisory board meeting minutes.**

### **1. Describe the need for the program/classes based on regional demands.**

We provide three courses (College Algebra, Elementary Statistics, and Quantitative Reasoning) that will meet the mathematics requirement for an Associate Degree as well as a Bachelor's Degree. We offer Trigonometry, Calculus I, Calculus II, and Calculus III when we have students majoring in STEM programs (Science, Technology, Engineering, and Mathematics).

### **2. Is program revision needed? If yes, provide a detailed rationale supporting the program change.**

Yes. A mandate from KBOR requires us to follow the Math Pathways. We recently finished the professional development offered by KBOR and have been piloting the new format that is required this academic year as we phase out our developmental course offerings. The full implementation of the Math Pathways must be completed by fall of 2026 according to the state timeline.

### **3. Describe how the revised program differs from the current one?**

We are currently in the piloting phase of our curriculum revision for the Math Pathways Initiative instituted by KBOR. There are two main differences. One difference is allowing students to pick their math pathway based on their major. There are three paths: the traditional College Algebra path for STEM majors, the Quantitative Reasoning (Contemporary Math) path for non-STEM majors, and the Elementary Statistics path for Social Science majors. The other change is the elimination of all developmental math courses like Intermediate Algebra and Elementary Algebra. They will be replaced with a co-requisite lab course that will include just in time tutoring and soft skills like how to handle math anxiety and study/notetaking skills.

## C. Program/Discipline Analysis:

### 1. What procedures are used to ensure that course content is up-to-date?

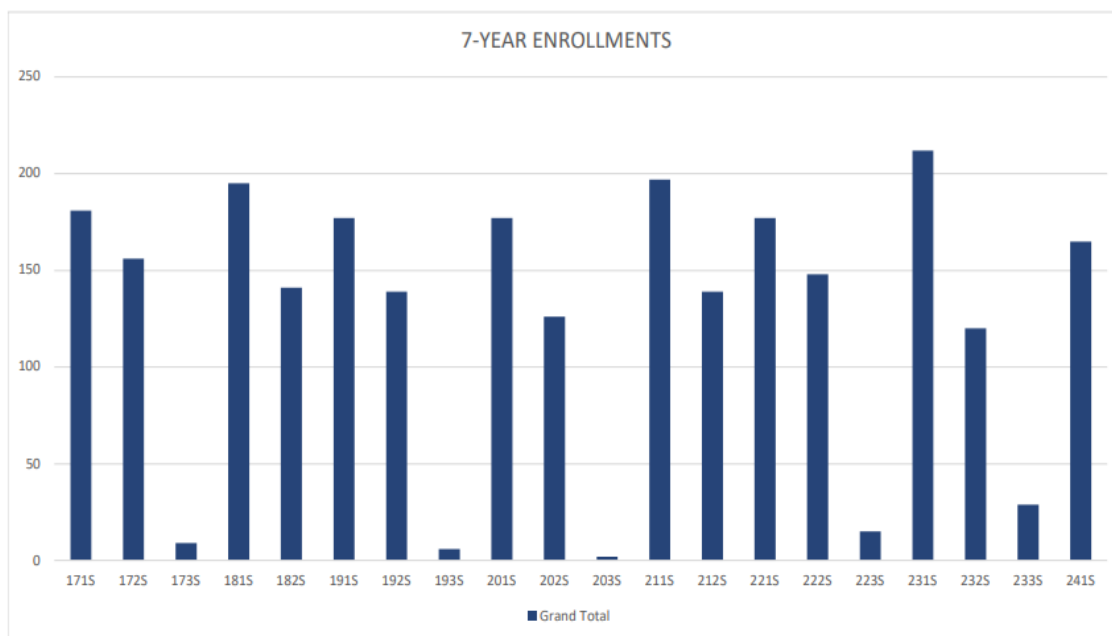
We attend the Kansas Core Outcomes Group (KCOG) meetings each fall so that we can make sure that our course outcomes match the agreed upon state outcomes. Then we make any necessary changes for the following semester or the following academic year depending on the changes and the affected course.

### 2. How do you ensure appropriate academic rigor and consistency of course content in all modalities and locations where the courses are offered?

The KCOG meetings offer an opportunity for math instructors from Kansas colleges and universities to regularly review each of the courses offered for transfer in our discipline. The full-time instructors attend the meeting each fall and then report back any changes to the course outcomes. This information is then shared with the Instruction Office so it can be disseminated to all of the adjunct and concurrent instructors. The full-time instructors are available by email to answer any questions from adjunct and concurrent instructors.

### 3. Provide the following data for your program below: Enrollment Data by course, credit hours, and grade distribution.

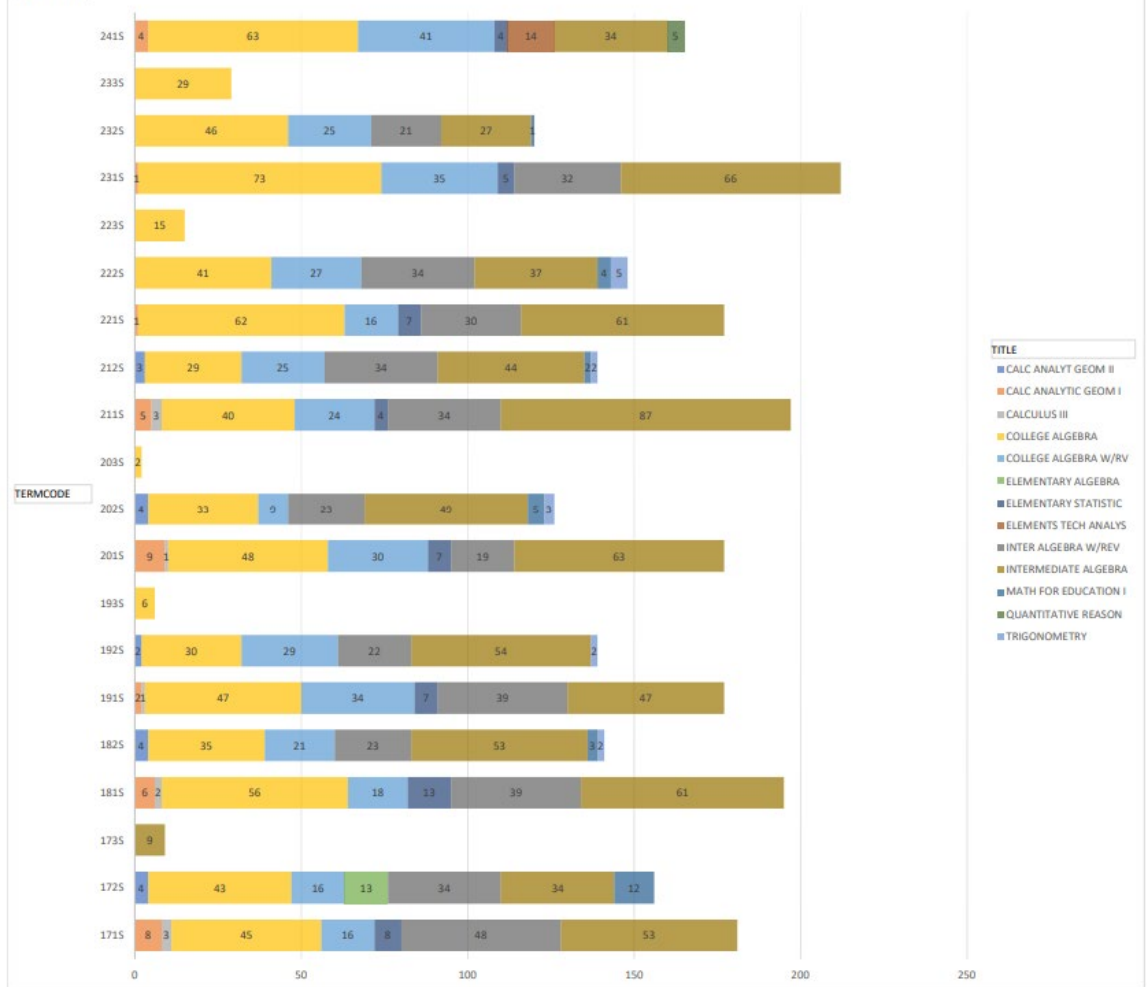
#### Full-time Instructors



# 7-YEAR ENROLLMEN DATA

INSTRUCTYPE

HEADCOUNT

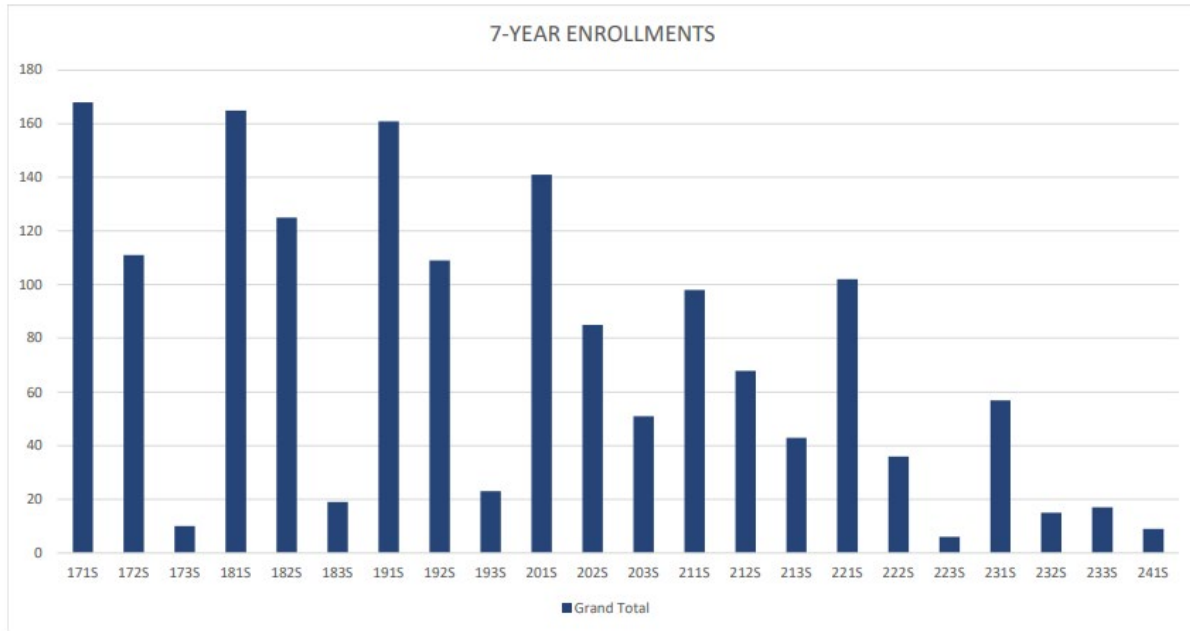


# FULL-TIME FACULTY - GRADE DISTRIBUTIONS

TERM AND COURSE	A	B	C	D	F	W	Grand Total	ABC RATE	DFW RATE
171S	26	45	45	9	15	41	181	64%	36%
172S	15	14	40	19	13	55	156	44%	56%
173S	1	1		3	2	2	9	22%	78%
181S	27	39	41	12	16	60	195	55%	45%
182S	8	17	25	12	17	62	141	35%	65%
191S	23	29	28	8	29	60	177	45%	55%
192S	13	26	30	10	24	36	139	50%	50%
193S	3	3					6	100%	0%
201S	36	34	19	7	24	57	177	50%	50%
202S	18	29	18	15	20	26	126	52%	48%
203S	1		1				2	100%	0%
211S	27	34	36	12	25	63	197	49%	51%
212S	13	24	32	10	24	36	139	50%	50%
221S	34	31	32	12	22	46	177	55%	45%
222S	29	24	44	8	16	27	148	66%	34%
223S	4	1	6	1	1	2	15	73%	27%
231S	34	40	48	12	37	41	212	58%	42%
232S	19	17	26	15	22	21	120	52%	48%
233S	7	5	2	2	6	7	29	48%	52%
241S	29	34	23	6	25	48	165	52%	48%
7-YEAR TREND/SUMMARY	367	447	496	173	338	690	2511	52%	48%

FULL-TIME FACULTY - GRADE DISTRIBUTIONS																							
TERM AND COURSE		A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE		TERM AND COURSE		A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE	
171S	CALC ANALYT GEOM I	26	45	45	9	15	41	181	64%	36%		202S	CALC ANALYT GEOM II	18	29	18	15	20	26	126	52%	48%	
	CALCULUS III	3	4				1	8	88%	13%			COLLEGE ALGEBRA	4	4	1				4	100%	0%	
	COLLEGE ALGEBRA	6	13	12	1	3	10	45	69%	31%			COLLEGE ALGEBRA W/RV	7	6	5	3	5	7	33	55%	45%	
	COLLEGE ALGEBRA W/RV	3	7	1	1	4		16	63%	38%			INTER ALGEBRA W/REV	1	4	3			1	9	89%	11%	
	ELEMENTARY STATISTIC	2	3					8	63%	38%			INTERMEDIATE ALGEBRA	2	5	5	2	3	6	23	52%	48%	
	INTER ALGEBRA W/REV	8	10	11	5	5	9	48	60%	40%			MATH FOR EDUCATION I	1	1	13	5	8	11	29	49	51%	
	INTERMEDIATE ALGEBRA	6	13	12	2	6	14	53	58%	42%			TRIGONOMETRY	2	1		2	1	1	5	20%	80%	
172S	CALC ANALYT GEOM II	15	14	40	19	13	55	156	44%	56%		203S	COLLEGE ALGEBRA	1	1	1				2	100%	0%	
	COLLEGE ALGEBRA	1	2	1				4	100%	0%			COLLEGE ALGEBRA W/RV	1	1					2	100%	0%	
	COLLEGE ALGEBRA W/RV	3	2	16	4		18	43	49%	51%			211S	27	34	36	12	25	63	197	49%	51%	
	ELEMENTARY STATISTIC	1	1	4	5	4	2	16	63%	38%			CALC ANALYT GEOM I	4	1					5	100%	0%	
	INTER ALGEBRA W/REV	1	1			4	7	13	15%	85%			CALCULUS III	3	3					3	100%	0%	
	INTERMEDIATE ALGEBRA	4	4	7	4	4	11	34	44%	56%			COLLEGE ALGEBRA	4	9	6	2	2	17	40	48%	52%	
	MATH FOR EDUCATION I	4	1	5	3	4	17	34	29%	71%			COLLEGE ALGEBRA W/RV	2	3	6	2	1	10	24	46%	54%	
173S	INTERMEDIATE ALGEBRA	1	6	4	1			12	58%	42%		212S	ELEMENTARY STATISTIC	1	3					4	100%	0%	
	CALC ANALYT GEOM I	1	1	3	2	2	2	9	22%	78%			INTER ALGEBRA W/REV	5	5	9	5	9	1	34	56%	44%	
	COLLEGE ALGEBRA	1	1	1	1	2	2	9	22%	78%			INTERMEDIATE ALGEBRA	8	13	15	3	13	35	87	41%	59%	
	CALCULUS III	27	39	41	12	16	60	195	55%	45%			MATH FOR EDUCATION I	13	24	32	10	24	36	139	50%	50%	
	COLLEGE ALGEBRA	1	1	2	1		1	6	67%	33%			CALC ANALYT GEOM II	3	3					3	100%	0%	
	COLLEGE ALGEBRA W/RV	1	1					2	100%	0%			COLLEGE ALGEBRA	1	8	4	5	4	7	29	45%	55%	
	ELEMENTARY STATISTIC	8	10	13	1	7	17	56	55%	45%			COLLEGE ALGEBRA W/RV	1	3	12		5	4	25	64%	36%	
181S	COLLEGE ALGEBRA W/RV	2	4	7	1	1	3	18	72%	28%		215S	INTER ALGEBRA W/REV	2	5	10		5	12	34	50%	50%	
	ELEMENTARY STATISTIC	4	7	1				13	92%	8%			INTERMEDIATE ALGEBRA	5	7	6	3	10	13	44	41%	59%	
	INTER ALGEBRA W/REV	6	10	7	1	3	12	39	59%	41%			MATH FOR EDUCATION I					2	2	0%	100%		
	INTERMEDIATE ALGEBRA	5	7	10	8	5	26	61	36%	64%			TRIGONOMETRY	1	1					2	100%	0%	
	CALC ANALYT GEOM II	8	17	25	12	17	62	141	35%	65%			221S	CALC ANALYT GEOM I	34	31	32	12	22	46	177	55%	45%
	COLLEGE ALGEBRA	1	1					2	50%	50%				CALC ANALYT GEOM I	1						1	100%	0%
	COLLEGE ALGEBRA W/RV	2	5	4	5	1	18	35	31%	69%				COLLEGE ALGEBRA	11	10	14	3	4	20	62	56%	44%
COLLEGE ALGEBRA W/RV	2	11	2	6			21	62%	38%		COLLEGE ALGEBRA W/RV	4		8	2	1	1	1	16	88%	13%		
INTER ALGEBRA W/REV	4	2	5	3	4	5	23	48%	52%		ELEMENTARY STATISTIC	1		2	2		1	1	7	71%	29%		
INTERMEDIATE ALGEBRA	5	3	4	10	31		53	15%	85%		INTER ALGEBRA W/REV	10		3	8	4	4	1	30	70%	30%		
MATH FOR EDUCATION I	1	2					3	100%	0%		INTERMEDIATE ALGEBRA	7		8	6	4	12	24	61	34%	66%		
191S	TRIGONOMETRY	1	1					2	100%	0%		222S	COLLEGE ALGEBRA	29	24	44	8	16	27	148	66%	34%	
	CALC ANALYT GEOM I	23	29	28	8	29	60	177	45%	55%			COLLEGE ALGEBRA	11	5	13	2	3	7	41	71%	29%	
	CALCULUS III	1	1					2	100%	0%			COLLEGE ALGEBRA W/RV	3	8	10	1	3	2	27	78%	22%	
	COLLEGE ALGEBRA	8	6	3	1	6	23	47	36%	64%			INTER ALGEBRA W/REV	5	7	10	1	4	7	34	65%	35%	
	COLLEGE ALGEBRA W/RV	5	6	10	3	3	7	34	62%	38%			INTERMEDIATE ALGEBRA	6	2	9	3	6	11	37	46%	54%	
	ELEMENTARY STATISTIC	3	3					7	86%	14%			MATH FOR EDUCATION I	2	1	1				4	75%	25%	
	INTER ALGEBRA W/REV	4	7	8	2	7	11	39	49%	51%			TRIGONOMETRY	2	2	1				5	100%	0%	
192S	INTERMEDIATE ALGEBRA	4	6	4	2	13	18	47	30%	70%		223S	COLLEGE ALGEBRA	4	1	6	1	1	2	15	73%	27%	
	CALC ANALYT GEOM II	13	26	30	10	24	36	139	50%	50%			COLLEGE ALGEBRA	4	1	6	1	1	2	15	73%	27%	
	COLLEGE ALGEBRA	2						2	100%	0%			CALC ANALYT GEOM I	34	40	48	12	37	41	212	58%	42%	
	COLLEGE ALGEBRA W/RV	1	7	7	1	5	9	30	50%	50%			CALC ANALYT GEOM I	1						1	100%	0%	
	COLLEGE ALGEBRA W/RV	2	9	8	4	4	2	29	66%	34%			COLLEGE ALGEBRA	18	16	10	2	10	17	73	60%	40%	
	INTER ALGEBRA W/REV	3	6	3	1	3	6	22	55%	45%			COLLEGE ALGEBRA W/RV	6	7	14	4	3	1	35	77%	23%	
	INTERMEDIATE ALGEBRA	5	4	11	4	12	18	54	37%	63%			ELEMENTARY STATISTIC	2	3					5	100%	0%	
193S	TRIGONOMETRY	1						2	50%	50%		231S	INTER ALGEBRA W/REV	3	6	12	1	8	2	32	66%	34%	
	COLLEGE ALGEBRA	3	3					6	100%	0%			INTERMEDIATE ALGEBRA	5	8	11	5	16	21	66	36%	64%	
	COLLEGE ALGEBRA	3	3					6	100%	0%			232S	29	17	26	15	22	21	120	52%	48%	
	CALC ANALYT GEOM I	36	34	19	7	24	57	177	50%	50%			COLLEGE ALGEBRA	14	8	9	2	5	8	46	67%	33%	
	CALCULUS III	1	1					2	100%	0%			COLLEGE ALGEBRA W/RV	3	10	6	2	4		25	52%	48%	
	COLLEGE ALGEBRA	18	8	5	4	13		48	65%	35%			INTER ALGEBRA W/REV	1	2	3	7	4	4	21	29%	71%	
	COLLEGE ALGEBRA W/RV	3	9	4	4	3	7	30	47%	53%			INTERMEDIATE ALGEBRA	4	3	4		11	5	27	43%	57%	
201S	ELEMENTARY STATISTIC	3	9	4	4	3	7	30	47%	53%		233S	MATH FOR EDUCATION I	1						1	100%	0%	
	ELEMENTARY STATISTIC	2	3	1	1			7	71%	29%			COLLEGE ALGEBRA	7	5	2	2	6	7	29	48%	52%	
	INTER ALGEBRA W/REV	3	7	1	1	1	6	19	58%	42%			COLLEGE ALGEBRA	7	5	2	2	6	7	29	48%	52%	
	INTERMEDIATE ALGEBRA	3	9	6	2	15	28	63	29%	71%			241S	29	34	23	6	25	48	165	52%	48%	
	CALC ANALYT GEOM I	1	2	1				4	100%	0%			CALC ANALYT GEOM I	1	2	1				4	100%	0%	
	CALCULUS III	12	10	12	2	7	20	63	46%	54%			COLLEGE ALGEBRA	12	10	12	2	7	20	63	54%	46%	
	COLLEGE ALGEBRA W/RV	6	5	4	3	8	15	41	37%	63%			COLLEGE ALGEBRA W/RV	6	5	4	3	8	15	41	37%	63%	
211S	ELEMENTARY STATISTIC	1	3					4	100%	0%		241S	ELEMENTARY STATISTIC	1	3					4	100%	0%	
	ELEMENTS TECH ANALYSIS	7	5	2				14	100%	0%			ELEMENTS TECH ANALYSIS	7	5	2				14	100%	0%	
	INTERMEDIATE ALGEBRA	1	7	3	1	10	12	34	32%	68%			INTERMEDIATE ALGEBRA	1	7	3	1	10	12	34	32%	68%	
	QUANTITATIVE REASON	1	2	1				5	80%	20%			QUANTITATIVE REASON	1	2	1				5	80%	20%	
	7-YEAR TREND/SUMMARY	367	447	496	173	338	690	2511	52%	48%			7-YEAR TREND/SUMMARY	367	447	496	173	338	690	2511	52%	48%	

## Adjunct Instructors



### ADJUNCT FACULTY - GRADE DISTRIBUTIONS

TERM AND COURSE	A	B	C	D	F	W	Grand Total	ABC RATE	DFW RATE
171S	26	23	28	15	33	43	168	46%	54%
172S	10	17	22	16	24	22	111	44%	56%
173S	1	3	2		2	2	10	60%	40%
181S	28	38	34	14	27	24	165	61%	39%
182S	20	19	20	8	35	23	125	47%	53%
183S	6	5	3	1	1	3	19	74%	26%
191S	25	31	30	14	37	24	161	53%	47%
192S	23	15	18	10	24	19	109	51%	49%
193S	5	6	5	3	1	3	23	70%	30%
201S	27	22	18	10	29	35	141	48%	52%
202S	13	15	8	7	12	30	85	42%	58%
203S	13	12	8	8	4	6	51	65%	35%
211S	14	17	17	7	21	22	98	49%	51%
212S	18	6	10	3	16	15	68	50%	50%
213S	10	10	6	4	8	5	43	60%	40%
221S	29	13	18	4	13	25	102	59%	41%
222S	12	2	5		6	11	36	53%	47%
223S	3	3					6	100%	0%
231S	24	18	5		9	1	57	82%	18%
232S	11	3			1		15	93%	7%
233S	14	2	1				17	100%	0%
241S	1	3	3		1	1	9	78%	22%
<b>Grand Total</b>	<b>333</b>	<b>283</b>	<b>261</b>	<b>124</b>	<b>304</b>	<b>314</b>	<b>1619</b>	<b>54%</b>	<b>46%</b>

ADJUNCT FACULTY - GRADE DISTRIBUTIONS

TERM AND COURSE	A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE
<b>171S</b>	<b>26</b>	<b>23</b>	<b>28</b>	<b>15</b>	<b>33</b>	<b>43</b>	<b>168</b>	<b>46%</b>	<b>54%</b>
COLLEGE ALGEBRA	3	4	4	3	8	8	30	37%	63%
ELEMENTARY ALGEBRA	15	16	17	9	14	21	92	52%	48%
INTER ALGEBRA W/REV	2	1		5	2		10	30%	70%
INTERMEDIATE ALGEBRA	4		4	1	4	4	17	47%	53%
MATH SKILLS	4	1	2	2	2	8	19	37%	63%
<b>172S</b>	<b>10</b>	<b>17</b>	<b>22</b>	<b>16</b>	<b>24</b>	<b>22</b>	<b>111</b>	<b>44%</b>	<b>56%</b>
COLLEGE ALGEBRA	1	4	7	4	1	8	25	48%	52%
ELEMENTARY ALGEBRA	5	7	6	8	8	8	42	43%	57%
INTER ALGEBRA W/REV			1	2	3	1	7	14%	86%
INTERMEDIATE ALGEBRA	2	2	6	1	4	2	17	59%	41%
MATH SKILLS	2	4	2	1	8	3	20	40%	60%
<b>173S</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>10</b>	<b>60%</b>	<b>40%</b>
COLLEGE ALGEBRA	1	3	2		2	2	10	60%	40%
<b>181S</b>	<b>28</b>	<b>38</b>	<b>34</b>	<b>14</b>	<b>27</b>	<b>24</b>	<b>165</b>	<b>61%</b>	<b>39%</b>
COLLEGE ALGEBRA	2	3	6	2	4	7	24	46%	54%
ELEMENTARY ALGEBRA	20	26	22	7	7	10	92	74%	26%
INTER ALGEBRA W/REV	1	1	1		3	1	7	43%	57%
INTERMEDIATE ALGEBRA			1	3	7	2	13	8%	92%
MATH SKILLS	5	8	4	2	6	4	29	59%	41%
<b>182S</b>	<b>20</b>	<b>19</b>	<b>20</b>	<b>8</b>	<b>35</b>	<b>23</b>	<b>125</b>	<b>47%</b>	<b>53%</b>
COLLEGE ALGEBRA	1	5	2	1	9	8	26	31%	69%
ELEMENTARY ALGEBRA	14	4	11	3	8	6	46	63%	37%
INTER ALGEBRA W/REV			1		2		3	33%	67%
INTERMEDIATE ALGEBRA	4	8	2	2	6	3	25	56%	44%
MATH SKILLS	1	2	4	2	12	4	25	28%	72%
<b>183S</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>19</b>	<b>74%</b>	<b>26%</b>
COLLEGE ALGEBRA	6	5	3	1	1	3	19	74%	26%
<b>191S</b>	<b>25</b>	<b>31</b>	<b>30</b>	<b>14</b>	<b>37</b>	<b>24</b>	<b>161</b>	<b>53%</b>	<b>47%</b>
COLLEGE ALGEBRA	5	5	5	2	11	7	35	43%	57%
ELEMENTARY ALGEBRA	16	20	15	6	11	11	79	65%	35%
INTER ALGEBRA W/REV	1	2	1	1	1	1	7	57%	43%
INTERMEDIATE ALGEBRA	1	1	1	2	5	1	11	27%	73%
MATH SKILLS	2	3	8	3	9	4	29	45%	55%
<b>192S</b>	<b>23</b>	<b>15</b>	<b>18</b>	<b>10</b>	<b>24</b>	<b>19</b>	<b>109</b>	<b>51%</b>	<b>49%</b>
COLLEGE ALGEBRA	9	3	2		4	8	26	54%	46%
ELEMENTARY ALGEBRA	6	9	8	5	11	6	45	51%	49%
INTER ALGEBRA W/REV			3	2		1	6	50%	50%
INTERMEDIATE ALGEBRA	5	2	1	2	5	3	18	44%	56%
MATH SKILLS	3	1	4	1	4	1	14	57%	43%

TERM AND COURSE	A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE
<b>193S</b>	<b>5</b>	<b>6</b>	<b>5</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>23</b>	<b>70%</b>	<b>30%</b>
COLLEGE ALGEBRA	2	5	5	3		2	17	71%	29%
ELEMENTARY ALGEBRA	3	1				1	6	67%	33%
<b>201S</b>	<b>27</b>	<b>22</b>	<b>18</b>	<b>10</b>	<b>29</b>	<b>35</b>	<b>141</b>	<b>48%</b>	<b>52%</b>
COLLEGE ALGEBRA	9	7	4		6	12	38	53%	47%
ELEMENTARY ALGEBRA	17	14	12	10	20	22	95	45%	55%
INTERMEDIATE ALGEBRA	1	1	2		3	1	8	50%	50%
<b>202S</b>	<b>13</b>	<b>15</b>	<b>8</b>	<b>7</b>	<b>12</b>	<b>30</b>	<b>85</b>	<b>42%</b>	<b>58%</b>
COLLEGE ALGEBRA	3	7	4	6	4	9	33	42%	58%
ELEMENTARY ALGEBRA	4	4	4	1	8	21	42	29%	71%
INTERMEDIATE ALGEBRA	6	4					10	100%	0%
<b>203S</b>	<b>13</b>	<b>12</b>	<b>8</b>	<b>8</b>	<b>4</b>	<b>6</b>	<b>51</b>	<b>65%</b>	<b>35%</b>
COLLEGE ALGEBRA	8	4	4	2	2	2	22	73%	27%
ELEMENTARY ALGEBRA	5	8	4	6	2	4	29	59%	41%
<b>211S</b>	<b>14</b>	<b>17</b>	<b>17</b>	<b>7</b>	<b>21</b>	<b>22</b>	<b>98</b>	<b>49%</b>	<b>51%</b>
COLLEGE ALGEBRA	1	2	4	3	8	6	24	29%	71%
ELEMENTARY ALGEBRA	13	15	13	4	13	16	74	55%	45%
<b>212S</b>	<b>18</b>	<b>6</b>	<b>10</b>	<b>3</b>	<b>16</b>	<b>15</b>	<b>68</b>	<b>50%</b>	<b>50%</b>
COLLEGE ALGEBRA	1		4	2	1	3	11	45%	55%
ELEMENTARY ALGEBRA	4	3	5	1	14	12	39	31%	69%
ELEMENTARY STATISTIC	5						5	100%	0%
INTERMEDIATE ALGEBRA	8	3	1		1		13	92%	8%
<b>213S</b>	<b>10</b>	<b>10</b>	<b>6</b>	<b>4</b>	<b>8</b>	<b>5</b>	<b>43</b>	<b>60%</b>	<b>40%</b>
COLLEGE ALGEBRA	10	10	6	4	8	5	43	60%	40%
<b>221S</b>	<b>29</b>	<b>13</b>	<b>18</b>	<b>4</b>	<b>13</b>	<b>25</b>	<b>102</b>	<b>59%</b>	<b>41%</b>
COLLEGE ALGEBRA	8	2	6	4	8	3	31	52%	48%
ELEMENTARY ALGEBRA	21	11	12	5	22		71	62%	38%
<b>222S</b>	<b>12</b>	<b>2</b>	<b>5</b>	<b>6</b>	<b>11</b>		<b>36</b>	<b>53%</b>	<b>47%</b>
ELEMENTARY ALGEBRA	3	1	5		6	10	25	36%	64%
ELEMENTARY STATISTIC	4						4	100%	0%
INTERMEDIATE ALGEBRA	5	1				1	7	86%	14%
<b>223S</b>	<b>3</b>	<b>3</b>					<b>6</b>	<b>100%</b>	<b>0%</b>
COLLEGE ALGEBRA	3	3					6	100%	0%
<b>231S</b>	<b>24</b>	<b>18</b>	<b>5</b>		<b>9</b>	<b>1</b>	<b>57</b>	<b>82%</b>	<b>18%</b>
COLLEGE ALGEBRA	9	11	1				21	100%	0%
ELEMENTARY ALGEBRA	15	7	4		9	1	36	72%	28%
<b>232S</b>	<b>11</b>	<b>3</b>		<b>1</b>			<b>15</b>	<b>93%</b>	<b>7%</b>
ELEMENTARY STATISTIC	5						5	100%	0%
INTERMEDIATE ALGEBRA	6	3			1		10	90%	10%
<b>233S</b>	<b>14</b>	<b>2</b>	<b>1</b>				<b>17</b>	<b>100%</b>	<b>0%</b>
COLLEGE ALGEBRA	14	2	1				17	100%	0%
<b>241S</b>	<b>1</b>	<b>3</b>	<b>3</b>		<b>1</b>	<b>1</b>	<b>9</b>	<b>78%</b>	<b>22%</b>
COLLEGE ALGEBRA	2	1			1	1	5	60%	40%
COLLEGE ALGEBRA W/RV	1	1	2				4	100%	0%
<b>Grand Total</b>	<b>333</b>	<b>283</b>	<b>261</b>	<b>124</b>	<b>304</b>	<b>314</b>	<b>1619</b>	<b>54%</b>	<b>46%</b>

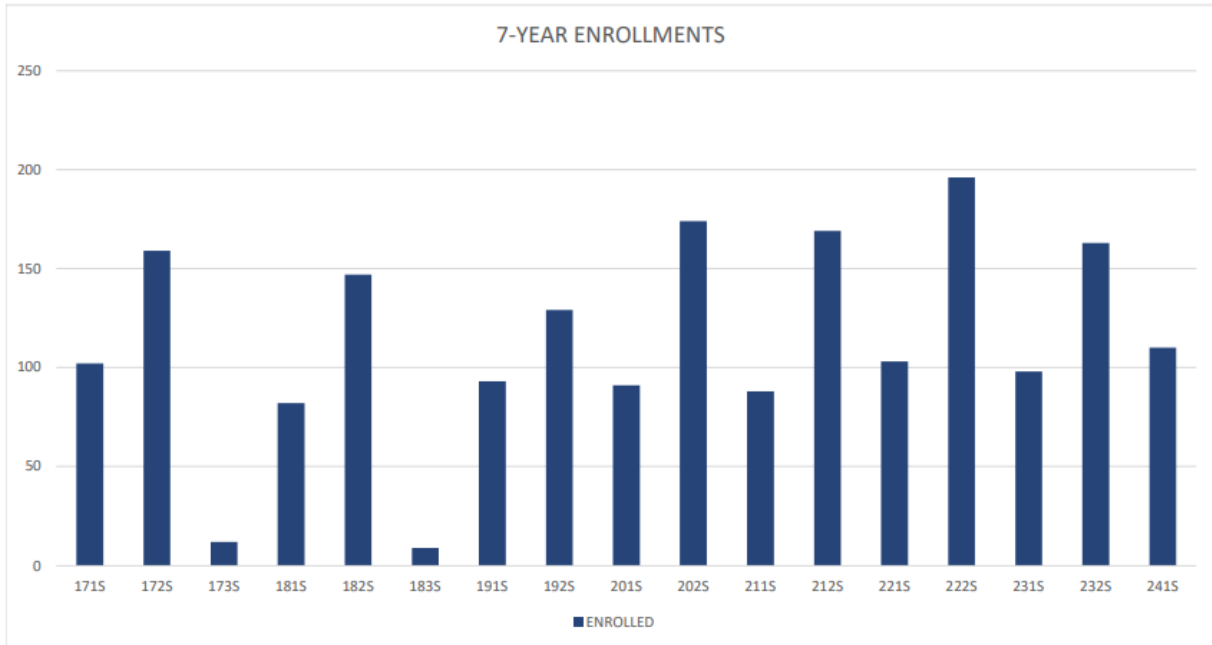
The passage rates for the full-time instructors and adjunct instructors fall in line with the national average that was presented in a report from the Mathematical Association of America (MAA). The relevant quote and a link to the article are included below.

”50 percent of students don't pass college algebra with a grade of C or above, according to a recent report from the Mathematical Association of America.”

([https://hechingerreport.org/high-failure-rates-spur-universities-overhaul-math-class/#:~:text=and%20science%20classes,-.50%20percent%20of%20students%20don't%20pass%20college%20algebra%20with,the%20Mathematical%20Association%20of%20America.\)](https://hechingerreport.org/high-failure-rates-spur-universities-overhaul-math-class/#:~:text=and%20science%20classes,-.50%20percent%20of%20students%20don't%20pass%20college%20algebra%20with,the%20Mathematical%20Association%20of%20America.)))

This is why many states are looking to revamp the mathematics curriculum in higher education. Kansas has decided to go with the Math Pathways approach.

## Concurrent Instructors



### CONCURRENT FACULTY - GRADE DISTRIBUTIONS

TERM AND COURSE	A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE
171S	57	25	13	2	3	2	102	93%	7%
172S	74	49	24	3	5	4	159	92%	8%
173S	7		1		1	3	12	67%	33%
181S	42	25	14	1			82	99%	1%
182S	85	43	13	4		2	147	96%	4%
183S	6	1	1		1		9	89%	11%
191S	56	23	11	1	2		93	97%	3%
192S	92	23	12	1		1	129	98%	2%
201S	47	30	11	2	1		91	97%	3%
202S	106	39	22	5	2		174	96%	4%
211S	50	21	8	1	1	7	88	90%	10%
212S	110	28	19	10		2	169	93%	7%
221S	49	27	23	4			103	96%	4%
222S	125	47	18	3	2	1	196	97%	3%
231S	59	26	10	3			98	97%	3%
232S	112	38	10	3			163	98%	2%
241S	67	28	14	1			110	99%	1%
Grand Total	1144	473	224	44	18	22	1925	96%	4%

CONCURRENT FACULTY - GRADE DISTRIBUTIONS

TERM AND COURSE	A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE
<b>1715</b>	<b>57</b>	<b>25</b>	<b>13</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>102</b>	<b>93%</b>	<b>7%</b>
COLLEGE ALGEBRA	54	24	13	2	3	2	98	93%	7%
ELEMENTARY STATISTIC	3	1					4	100%	0%
<b>1725</b>	<b>74</b>	<b>49</b>	<b>24</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>159</b>	<b>92%</b>	<b>8%</b>
CALC ANALYTIC GEOM I	4	3	1				8	100%	0%
COLLEGE ALGEBRA	57	34	16	3	5	4	119	90%	10%
ELEMENTARY STATISTIC	7	3	3				13	100%	0%
TRIGONOMETRY	6	9	4				19	100%	0%
<b>1735</b>	<b>7</b>	<b>1</b>	<b>1</b>	<b>3</b>			<b>12</b>	<b>67%</b>	<b>33%</b>
COLLEGE ALGEBRA	7	1	1	3			12	67%	33%
<b>1815</b>	<b>42</b>	<b>25</b>	<b>14</b>	<b>1</b>			<b>82</b>	<b>99%</b>	<b>1%</b>
COLLEGE ALGEBRA	42	25	14	1			82	99%	1%
<b>1825</b>	<b>85</b>	<b>43</b>	<b>13</b>	<b>4</b>	<b>2</b>		<b>147</b>	<b>96%</b>	<b>4%</b>
CALC ANALYTIC GEOM I	2	7	2				11	100%	0%
COLLEGE ALGEBRA	72	32	9	3	1		117	97%	3%
ELEMENTARY STATISTIC	5						5	100%	0%
TRIGONOMETRY	6	4	2	1	1		14	86%	14%
<b>1835</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>1</b>			<b>9</b>	<b>89%</b>	<b>11%</b>
COLLEGE ALGEBRA	6	1	1	1			9	89%	11%
<b>1915</b>	<b>56</b>	<b>23</b>	<b>11</b>	<b>1</b>	<b>2</b>		<b>93</b>	<b>97%</b>	<b>3%</b>
CALC ANALYTIC GEOM I	3	2					5	100%	0%
COLLEGE ALGEBRA	53	21	11	1	2		88	97%	3%
<b>1925</b>	<b>92</b>	<b>23</b>	<b>12</b>	<b>1</b>		<b>1</b>	<b>129</b>	<b>98%</b>	<b>2%</b>
CALC ANALYTIC GEOM I	2						2	100%	0%
COLLEGE ALGEBRA	81	22	9			1	113	99%	1%
ELEMENTARY STATISTIC	7	1					8	100%	0%
TRIGONOMETRY	2	1	2	1			6	83%	17%
<b>2015</b>	<b>47</b>	<b>30</b>	<b>11</b>	<b>2</b>	<b>1</b>		<b>91</b>	<b>97%</b>	<b>3%</b>
CALC ANALYTIC GEOM I	1						1	100%	0%
COLLEGE ALGEBRA	43	29	11	2	1		86	97%	3%
ELEMENTARY STATISTIC	3	1					4	100%	0%

TERM AND COURSE	A	B	C	D	F	W	ENROLLED	ABC RATE	DFW RATE
<b>2025</b>	<b>106</b>	<b>39</b>	<b>22</b>	<b>5</b>	<b>2</b>		<b>174</b>	<b>96%</b>	<b>4%</b>
CALC A	14		1				15	100%	0%
COLLEGE	61	23	18	5	2		109	94%	6%
ELEME	9	6					15	100%	0%
TRIGON	22	10	3				35	100%	0%
<b>2115</b>	<b>50</b>	<b>21</b>	<b>8</b>	<b>1</b>	<b>1</b>	<b>7</b>	<b>88</b>	<b>90%</b>	<b>10%</b>
CALC A	2					1	3	67%	33%
COLLEGE	44	21	8	1	1	6	81	90%	10%
ELEME	4						4	100%	0%
<b>2125</b>	<b>110</b>	<b>28</b>	<b>19</b>	<b>10</b>		<b>2</b>	<b>169</b>	<b>93%</b>	<b>7%</b>
CALC A	9	1				1	11	91%	9%
COLLEGE	60	15	12	9		1	97	90%	10%
ELEME	15	4	1				20	100%	0%
TRIGON	26	8	6	1			41	98%	2%
<b>2215</b>	<b>49</b>	<b>27</b>	<b>23</b>	<b>4</b>			<b>103</b>	<b>96%</b>	<b>4%</b>
CALC A	3						3	100%	0%
COLLEGE	42	26	23	4			95	96%	4%
ELEME	4	1					5	100%	0%
<b>2225</b>	<b>125</b>	<b>47</b>	<b>18</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>196</b>	<b>97%</b>	<b>3%</b>
CALC A	15	10					25	100%	0%
COLLEGE	66	23	10	2	2	1	104	95%	5%
ELEME	21	9	1				31	100%	0%
TRIGON	23	5	7	1			36	97%	3%
<b>2315</b>	<b>59</b>	<b>26</b>	<b>10</b>	<b>3</b>			<b>98</b>	<b>97%</b>	<b>3%</b>
CALC A	2						2	100%	0%
COLLEGE	51	26	10	3			90	97%	3%
ELEME	6						6	100%	0%
<b>2325</b>	<b>112</b>	<b>38</b>	<b>10</b>	<b>3</b>			<b>163</b>	<b>98%</b>	<b>2%</b>
CALC A	9	2					11	100%	0%
COLLEGE	52	22	7	1			82	99%	1%
ELEME	18	2					20	100%	0%
TRIGON	33	12	3	2			50	96%	4%
<b>2415</b>	<b>67</b>	<b>28</b>	<b>14</b>	<b>1</b>			<b>110</b>	<b>99%</b>	<b>1%</b>
COLLEGE	55	26	14	1			96	99%	1%
ELEME	12	2					14	100%	0%
Grand Tot:	<b>1144</b>	<b>473</b>	<b>224</b>	<b>44</b>	<b>18</b>	<b>22</b>	<b>1925</b>	<b>96%</b>	<b>4%</b>

The concurrent passage rate is quite a bit higher than the national College Algebra passage rate. This could occur because the students who are taking the class at the high school are the top students and they qualify to take the college level class without any remediation. Many of the concurrent courses are taught over an entire school year, five days a week, instead of a 16-week semester, two days a week. Having extra time on the class material will impact the success of the students.

**4. Instructor Information: List full time faculty, adjunct faculty, and concurrent faculty who teach courses in the program.**

Kathy Malone	Retired (but included in the 7-year data)
DeeAnn VanLuyck	Full Time Faculty
Savanna Ashmore	Full Time Faculty
Terina Platt	Adjunct Instructor
Julie Talbot	Adjunct Instructor
Whitney Black	Concurrent Instructor - PHS
Jessica Compliment	Concurrent Instructor - LBHS
Tim Endicott	Concurrent Instructor - UHS
Morgan Felt	Concurrent Instructor - FSHS
Norman Jones	Concurrent Instructor - PLHS
Tamala Snyder	Concurrent Instructor - PVHS
Kevin Spencer	Concurrent Instructor - JLHS
Leanna Willer	Concurrent Instructor – LBHS

## **D. Program Assessment:**

### **1. What are the program outcomes and what methods are used to assess the program outcomes?**

#### **FSCC Mathematics Department PLOs**

- P1. Synthesize relevant information and create a mathematical equation or expression to determine the answer to the question posed in an application.
- P2. Use algebraic manipulation to find solutions to problems.
- P3. Analyze, create and solve problems using graphs.
- P4. Communicate mathematics using correct terminology and notation.
- P5. Apply mathematics to think critically.

#### **Elementary Algebra \***

Comprehensive Final Exam

#### **Intermediate Algebra \***

Comprehensive Final Exam

#### **College Algebra**

Comprehensive Final Exam

#### **Trigonometry**

Comprehensive Final Exam

#### **Calculus I**

Comprehensive Final Exam

#### **Calculus II**

Comprehensive Final Exam

#### **Calculus III**

Comprehensive Final Exam

#### **Elementary Statistics**

One Assignment and Individual Unit Tests

#### **Quantitative Reasoning**

Individual Unit Tests

#### **Mathematics for Education I \***

Comprehensive Final Exam

\* These courses will be phased out as we transition to the new Math Pathways.

## 2. Complete the Curriculum Mapping Matrix.

### FSCC Mathematics Department SLOs

Template source: modified from Kansas State University and John Carroll University

“X” denotes courses or experiences in which students have the opportunity to learn the outcome.

“A” denotes courses or experiences in which student performance is used for program level assessment of the outcome.

“C1, C2, etc.” denotes the course competency assessed.

Underlined dates note when assessments will begin being recorded.

<b>FSCC MATH DEPARTMENT/ EMPHASIS</b>	College Alg: MAT 1083 MAT 1084 <u>Fall 2017</u> (Every semester)	Elem Stats: MAT 2253 <u>Fall 2020</u> (Every semester)	Quant Reasoning MAT1063 <u>Fall 2024</u> (Every semester)	Trig: MAT 1093 <u>Spring 2019</u> (Spring only)	Math for Ed: MAT 2043 <u>Spring 2020</u> (Spring only)	Calculus I: MAT 1015 <u>Fall 2018</u> (Fall only)	Calculus II: MAT 1025 <u>Spring 2018</u> (Spring only)	Calc III: MAT 2033 <u>Fall 2018</u> (Fall only)	Int Alg: Bus. Math: MAT1073 MAT2763 MAT1075 <u>Spring 2018</u> (Every semester)
Synthesize relevant information and create a mathematical equation or expression to determine the answer to the question posed in an application.	A/C2, C3, C5, C7, C11, C12	A/C4, C5, C6, C7	A/C2, C3, C4	A/C9	A/C1, C3, C12	A/C2, C3	A/C1	A/C1, C2, C3	A/C2 X
Use algebraic manipulation to find solutions to problems.	A/C2, C8, C9, C10, C13	A/C1, C2	A/C5	A/C2, C5, C7, C8, C10, C11	A/C6	X	X	X	A/C2 X
Analyze, create and solve problems using graphs.	A/C1, C6, C10	A/C1, C2, C7	X	A/C4, C6	A/C8	A/C3	A/C2	A/C2, C3	A/C3, C4
Communicate mathematics using correct terminology and notation.	A/C1, C2, C4	A/C1, C3, C5, C6	A/C1, C6	A/C1, C3	A/C4, C5, C7	A/C1, C2, C3	A/C1, C2, C3	A/C1, C2, C3	A/C1
Apply mathematics to think critically.	A/C2, C3, C10, C11, 12	A/C5, C6, C7	A/C1	A/C5, C9	A/C2, C9, C10, C11	A/C2, C3	A/C1, C2, C3	A/C1, C2, C3	A/C2 A/C1, C2, C4

### **3. What is the process for program and course level assessment?**

Each course competency is mapped to the corresponding program level outcome. At the end of the semester all of the instructors report the course competency information for each student in Blackboard. Blackboard has our course mapping information so that we can get a detailed report each semester on the program outcome we are working on improving. Currently, we are working to improve Program Outcome #3: Analyze, create and solve problems using graphs.

#### **College Algebra Competencies (previously recorded prior to Fall 2021):**

- C1. Analysis and Graphing of Functions and Equations (Questions 1-20 on Final Exam)
- C2. Solutions of Equations and Inequalities (Questions 21-40 on Final Exam)  
Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,  
Benchmark: 70% of students meeting competencies with a 3 or 4

#### **College Algebra Broken Down to 13 Outcomes: Began either Fall 2021 or Spring 2022:**

- O1. Analysis & Graphing of Functions & Equations: Use functional notation, including finding arithmetic combinations & composition of functions (Q 1-3 on Final, 8 points)
- O2. Analysis & Graphing of Functions & Equations: Recognize & distinguish between functions & relations (equations) (Q 4-6 on Final, 12 points)
- O3. Analysis & Graphing of Functions & Equations: use concepts of symmetry, intercepts, left- & right-hand behavior, asymptotes, & transformations to sketch the graph of various types of functions (constant, linear, quadratic, absolute value, piecewise-defined, square root, cubic, polynomial, rational, exponential, rational, exponential, and logarithmic) or relations (circle) given in description. (Q 7-9 on Final, 10 points)
- O4. Analysis & Graphing of Functions & Equations: Determine the domain & range of relations & functions (Q 10-12 on Final, 12 points)
- O5. Analysis & Graphing of Functions & Equations: Write the equation that describes a function (for types given above) or circle given its description (Q13-15 on Final, 6 points)
- O6. Analysis & Graphing of Functions & Equations: Use graphs of functions for analysis (Q 16-18 on Final, 8 points)
- O7. Analysis & Graphing of Functions & Equations: Find the inverse of a function (Q 19-21 on Final, 8 points)
- O8. Solutions of Equations & Inequalities: Solve equations including literal equations, linear equations, quadratic equations by factoring & the quadratic formula, higher-order polynomial equations, equations involving rational expressions, equations involving radicals, and equations involving absolute value expressions, along with equations involving exponential or logarithmic functions (Q22-25 on Final, 8 points)
- O9. Solutions of Equations & Inequalities: Solve inequalities of the following types: linear (in one and two variables), polynomial, rational, absolute value (Q 26-28 on Final, 8 points)
- O10. Solutions of Equations & Inequalities: Solve systems of inequalities by graphing (Q 29-31 on Final, 16 points)
- O11. Solutions of Equations & Inequalities: Apply equations from #8 in this core outcome to real-world situations, such as depreciation, growth & decay, & max/min problems (Q 32-34 on Final, 6 points)
- O12. Solutions of Equations & Inequalities: Examine & analyze data, make predictions/interpretations, and do basic modeling (Q 35-37 on Final, 8 points)
- O13. Solutions of Equations & Inequalities: Solve systems of equations by various methods, including matrices (Q 38-40 on Final, 6 points)  
Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,  
Benchmark: 70% of the students meeting outcomes with a 3 or 4

**Intermediate Algebra Competencies (begin recording spring 2018):**

- C1. Arithmetic and Algebraic Manipulation (Questions 1-20 on Final Exam)
- C2. Equations and Inequalities (Questions 21-37 on Final Exam)
- C3. **Graphs on a Coordinate Plane (Questions 38-42 on Final Exam) – C3 is what will be gathering data on beginning on spring 2021**
- C4. Analysis of Equations and Graphs (Questions 43-50 on Final Exam)  
Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,  
Benchmark: 70% of students meeting competencies with a 3 or 4

**Calculus I Competencies (begin recording fall 2018): (fall only)**

- C1. Limits and continuity (Questions 1-10 on Final Exam)
- C2. Derivatives (Questions 11-20 on Final Exam)
- C3. Integration (Questions 21-30 on Final Exam)  
Rubric: 0%-49% = 1, 50%-79% = 2, 80%-89% = 3, 90%-100% = 4,  
Benchmark: 80% of students meeting competencies with a 3 or 4

**Calculus II Competencies (begin recording spring 2018): (spring only)**

- C1. Techniques of integration & understand differential equations (Questions 1-10 on Final Exam)
- C2. Parameterized curves, polar coordinates, and infinite series (Questions 11-20 on Final Exam)
- C3. Vectors and analytic geometry in space (Questions 21-30 on Final Exam)  
Rubric: 0% - 49% = 1, 50% - 74% = 2, 75% - 84% = 3, 85% - 100% = 4,  
Benchmark: 75% of students meeting competencies with a 3 or 4

**Calculus III Competencies (begin recording fall 2018): (fall only)**

- C1. Functions of several variables (Questions 1-10 on Final Exam)
- C2. Multiple integrals (Questions 11-20 on Final Exam)
- C3. Vector analysis (Questions 21-30 on Final Exam)  
Rubric: 0%-49% = 1, 50%-74% = 2, 75%-84% = 3, 85%-100% = 4,  
Benchmark: 75% of students meeting competencies with a 3 or 4

### **Elementary Statistics (begin fall 2020): (fall only)**

#### **Starting in 2024 – 2025 offered in both semesters for Math Pathways**

- C1. Create graphical and numerical descriptions of quantitative and qualitative data. (Test 1 over Chapters 2 and 3 Material)
- C2. Calculate probabilities and percentiles related to a general normal distribution. (Test 2 over Chapter 6 Material)
- C3. Distinguish differences in data analysis and interpretation between observational data and data from designed experiments. (Homework Assignment)
- C4. Calculate and interpret a confidence interval for a single parameter, using both large and small samples. (Test 3 over Chapter 7 Material)
- C5. Perform and interpret a test of hypotheses for a single parameter, using both large and small samples. (Test 4 over Chapter 8 Material)
- C6. Perform and interpret statistical inference on the difference of two parameters. (Test 5 over Chapter 9 Material)
- C7. Fit and interpret a simple linear regression model, including correlation and scatterplots. (Final Exam over Chapter 10 Material)

Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,

Benchmark: 75% of students meeting competencies with a 3 or 4\*

\* Since Elementary Statistics is no longer an advanced course, we will need to change the benchmark to 70% starting in fall of 2026 if not before.

### **Trigonometry (begin spring 2019): (spring only)**

- C1. Understand the basic definitions of trigonometric functions using both a right triangle and the unit circle.
- C2. Solve right triangles, and know trigonometric function values for special angles.
- C3. Understand radian definition and measurement, and understand circular functions as real-valued functions.
- C4. Analyze the graphs of the six basic trigonometric functions and their arithmetic transformations using the concepts of period, phase shift, amplitude, and displacement.
- C5. Derive/verify trigonometric identities, including but not limited to, double angle, half angle, angle sum and angle difference identities.
- C6. Define, graph, and analyze inverse trigonometric functions.
- C7. Solve equations involving trigonometric functions.
- C8. Find solutions of oblique triangles using the Law of Cosines and the Law of Sines.
- C9. Solve applications, including but not limited to, vectors.
- C10. Derive the trigonometric form of complex numbers and perform calculations with them including products and quotients.
- C11. Translate between rectangular and polar coordinates and graph within the polar coordinate system.

Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,

Benchmark: 75% of students meeting competencies with a 3 or 4

### **Mathematics for Education I (begin spring 2021): (spring only)**

**Last time offered was in spring of 2024 because of the change to the Math Pathways.**

- C1. Identify the basic steps, and be able to apply them, of problem-solving;
- C2. Identify and create sequences (e.g. arithmetic, geometric, figurate, Fibonacci, etc.);
- C3. Utilize sequences and series in problem-solving situations;
- C4. Understand and be able to apply basic set theory including operations and Venn Diagrams to solve problems;
- C5. Define and recognize relations and functions including common tests for functions (e.g. arrow, diagrams, vertical line test, etc.);
- C6. Interpret functions in both tabular and equation form;
- C7. Understand the basic principles of descriptive statistics;
- C8. Draw graphs such as box and whisker, histogram, circle graph, frequency curve to represent a set of data;
- C9. Identify the uses and abuses of statistics in everyday life;
- C10. Apply the tools and techniques of measurement for the organization and analysis of data;
- C11. Apply basic probability counting strategies including multi-step experiments and odds;
- C12. Recognize and apply counting strategies (e.g. permutations and combinations) associated with probability simulations

Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,

Benchmark: 70% of students meeting competencies with a 3 or 4

### **Quantitative Reasoning (begin fall 2024):**

- C1. Apply critical and logical thinking skills to analyze various applications. (Test 1 over Chapters 1 - 3 Material)
- C2. Apply estimation, measurement, and an understanding of numbers to various applications. (Test 3 over Chapters 7 and 9 Material)
- C3. Use and evaluate statistics for decision making. (Test 4 over Chapter 11 Material)
- C4. Demonstrate basic concepts of probability and risk. (Test 3 over Chapter 10 Material)
- C5. Apply mathematical methods to personal finance. (Test 2 over Chapter 6 Material)
- C6. Apply mathematics to the study of real-world situations. (Final Exam over Chapters 5 and 13 Material)

Rubric: 0%-49% = 1, 50%-69% = 2, 70%-79% = 3, 80%-100% = 4,

Benchmark: 70% of students meeting competencies with a 3 or 4

<b>MATH REFERENCE RUBRIC- PLO Rubric with achievement levels</b>				
<i>Description: This rubric is used for department/program data reporting only. Credits: AACU Value Rubric <a href="https://www.aacu.org/value-rubrics">https://www.aacu.org/value-rubrics</a></i>				
	<b>Levels of Achievement</b>			
<b>Criteria</b>	<b>1 = Does not meet expectations</b>	<b>2 = Needs improvement</b>	<b>3 = Satisfies expectations</b>	<b>4 = Mastered</b>
<b>Outcome 1:</b> <b>Synthesize relevant information and create a mathematical equation or expression to determine the answer to the question posed in an application.</b>	Student scores 0%-49% correct on assessment	Student scores 50%-69% correct on assessment	Student scores 70%-79% correct on assessment	Student scores 80%-100% correct on assessment
<b>Outcome 2:</b> <b>Use algebraic manipulation to find solutions to problems.</b>	Student scores 0%-49% correct on assessment	Student scores 50%-69% correct on assessment	Student scores 70%-79% correct on assessment	Student scores 80%-100% correct on assessment
<b>Outcome 3:</b> <b>Analyze, create, and solve problems using graphs.</b>	Student scores 0%-49% correct on assessment	Student scores 50%-69% correct on assessment	Student scores 70%-79% correct on assessment	Student scores 80%-100% correct on assessment
<b>Outcome 4:</b> <b>Communicate mathematics using correct terminology and notation.</b>	Student scores 0%-49% correct on assessment	Student scores 50%-69% correct on assessment	Student scores 70%-79% correct on assessment	Student scores 80%-100% correct on assessment
<b>Outcome 5:</b> <b>Apply mathematics to think critically.</b>	Student scores 0%-49% correct on assessment	Student scores 50%-69% correct on assessment	Student scores 70%-79% correct on assessment	Student scores 80%-100% correct on assessment

**4. Include the findings of outcomes assessment reports from the department since the last program review? (Include the assessment data to support your findings.)**

**Department/Program Outcomes Summative Assessment Report**

Year: AY 2022-2024

Department: Mathematics Department

Contact: DeeAnn VanLuyck, Savanna Ashmore

Current Assessment Plan: Fall 2022, Spring 2023, Fall 2023, Spring 2024

**Instructions:** For each student learning outcome assessed this year, identify the outcome statement, and then describe the methods, performance targets, results, and improvements or action plans made based on the findings. If you assessed more than one outcome, copy and paste the outline as needed.

- Every semester of the evaluation cycle, the division chairs will fill out the form for each department (3 semesters are part of the evaluation cycle). For the current assessment plan for which you are submitting the report, circle the semester.
- Make sure to report on the same department outcome for the cycle and submit the form to the Instruction office.
- You don't need to aggregate the data for three semesters because you're looking at the trend data from one semester to the next for that cycle.
- In the last semester of that cycle, write the Program Improvements or Action Plan. However, if an action plan is needed before the last semester feel free to write it.

**Student learning outcome assessed:**

- PLO 3. Analyze, create, and solve problems using graphs.

**Methods used to assess at the department/program level (If multiple methods are used, describe each one separately):**

- Final Exam - College Algebra (MAT1083), College Algebra w/ Review (MAT1084), Trig (MAT1093), Calc. I (MAT1015), Calc. II (MAT1025), Int. Algebra (MAT1073,1075)
- One Assignment, Tests 1 - 5, and Final Exam - Elem. Statistics (MAT2253)
- Tests 1 – 5, Final Exam - Quantitative Reasoning (MAT1063)

**Benchmark for each assessment method used:**

- 70% of students will achieve 3 or 4 on a 4-point rubric.
- final test pairs with a course outcome for most classes.
- Each chapter test in Elementary Statistics and Quantitative Reasoning pairs with a course outcome. Note that the Final Exam is the last chapter test.

**Results with analysis and interpretation:**

- AY Fall 2022-Spring 2023: PLO3 is 60% of students meeting or exceeding the outcome.
- Fall 2023 PLO3 resulted in 38% of all math students meeting or exceeding the outcome.
- Spring 2024 PLO3 resulted in 43% of all math students meeting or exceeding the outcome.

AY 22-23 is a combination of the semesters and cannot be compared to the AY 23-24 individual semesters. This is a result of redefining our methods of exporting data over the 2-year cycle. In addition, within AY 22-23, the alignments were not linked to each outcome on the rubric for some of the classes that may or may not have been reported. Since this time, instructors have been trained on how to check the alignments on the rubrics and report assessment data through Blackboard.

Between Fall 2023 and Spring 2024, we can conclude that the PLO3 has increased. This may be since Fall 2023 was not a “traditional” semester compared to Spring 2024. The final week was the week before Thanksgiving Break and may have caused faculty and students to feel rushed. Another conclusion could be that improvement was made because instructors implemented their changes to their instruction explained below. Since the instructors made changes throughout the two-year cycle, they will continue to implement them during the next two-year cycle to see if there is a trend in improvement. In addition, instructors will continue to find more ideas on how to increase the passing rate of PLO3.

**Program improvements made or actions planned in response to these assessment findings:**

Throughout the two-year cycle, instructors implemented different strategies to improve the success of PLO3 for all students.

- For Intermediate and College Algebra courses, instructors provided extra credit to promote more practice with the concepts aligned with PLO3 before the test dates. Instructors plan to document the completion rate of assignments tied to the outcomes for the next two-year cycle to watch for a trend. Over the past two years, instructors have also made changes with notes and provided note outlines to support students in class and promote better note taking. Supplement worksheets have been created to support the graphing concepts and better tie the individual topics together. If students apply the individual concepts to an overall goal of graphing, each topic won't seem disconnected. Lastly, the students had an opportunity to make test corrections on the graphing chapter test. If completed correctly, students can pinpoint their misunderstandings through redoing the problem and providing at least 3 sentence paragraphs explaining their misunderstandings or a way to remember the concepts or methods.
- For Elementary Statistics, students hit the benchmark. The instructor will continue to provide test reviews to support student's mastery of the concepts. Test correction opportunity will be provided on the graphing test again when they did not meet or exceed the expectation of 70%.
- In calculus 1, for each Fall semester in the two-year cycle, one student was tested. There was not enough data to draw conclusions. The instructor will continue to improve on notes to help teach the concepts and possibly provide video resources for students to utilize.

Instructors will continue with these changes and implement them for the next two-year cycle since some changes were made toward the end of AY 2022-2024 and the data was not comparable. With the new two-year cycle, trends are expected to be evident with the consistency of the improvement opportunities

**E. For CTE programs only:**

**Program majors/Current concentrators**

**Unduplicated prior 3-year graduates**

- 1. Please list any third-party accreditation.**
- 2. List any additional needs for the program (facilities, personnel, technology, student support, etc.).**

## ***II. SWOT Analysis***

### **A. Strengths:**

We have highly qualified instructors.

The instructors have a willingness to explore new teaching techniques.

We develop some of our own course materials and projects.

All of our instructors in the math department care about the students and their success.

We seek out professional development opportunities

### **B. Weaknesses:**

We have experienced low enrollment issues during the AY 24-25 partly due to the change to the Math Pathways. Another change impacting the class schedule was the implementation of a four-day class week.

### **C. Opportunities:**

We have an opportunity to develop additional online classes: Elementary Statistics and Trigonometry.

By refreshing our entry level math curriculum, we will be able to assess what is working best for our students and capitalize on those observations as we move forward.

We are going to build our own support courses for our students who would have been in developmental education before the Math Pathways.

We need to educate everyone on campus, incoming students, and high school counselors on the new Math Pathways and how they are going to benefit our students.

### **D. Threats:**

Making sure the college has the funding for qualified tutors and out-of-class resources.

Holding the students accountable by making sure they are not getting answers from apps and AI so that we uphold a high level of academic honesty.

### **III. Action Plan**

#### **A. Action Plan**

**1. Provide a list of accomplished action items from the previous Program Review. What items are pending/not completed from the last Program Review? Please provide rationale.**

A few items we have completed since the last program review in 2020 include:

- We are required to phase out our developmental classes by fall of 2026 so Elementary Algebra was phased out in spring of 2023. Intermediate Algebra with Review was phased out in spring of 2024. In the fall of 2024, we phased out the online offering of Intermediate Algebra and the face-to-face Intermediate Algebra will be phased out in the spring of 2025.
- We finished the Math Pathways Professional Development series offered by KBOR on Friday, January 24, 2025.
- Savanna worked to bring Math Relays back. We had our first one in two or three years in October of 2024.

**2. Create an action plan including justification for the program.**

- Work on a Math Pathways Marketing Video.
- Work on setting up the supplemental (lab) courses for College Algebra, Elementary Statistics, and Quantitative Reasoning.
- Collaborate with Student Services to ensure a course schedule that will accommodate the majority of our students.
- Make sure that the Math Pathways courses are available in various modalities including online during the fall and spring semesters. Online offerings during the summer session and the winter intersession may vary based on future enrollment trends.

## SUMMARY REPORT ACADEMIC PROGRAM REVIEW

**Date:**

### **Academic Program Report Checklist**

**Cover Sheet:**

- ☐ **Department**
- ☐ **Date of Program Review**
- ☐ **Prepared By**

Introduction to Program

### **I. Scope**

- ☐ **Program Relation to College Mission, Core Values, and Strategic Plan:**
  - ☐ Goals and measurable objectives aligned with college mission.
  - ☐ Strategic plan goals impacted by the program.
- ☐ **Program/Discipline Demand/Need:**
  - ☐ Advisory board meeting minutes (if applicable).
  - ☐ Description of regional demands for the program/classes.
  - ☐ Need for program revision (if applicable).
  - ☐ Rationale and details of proposed program changes.
- ☐ **Program/Discipline Analysis:**
  - ☐ Procedures ensuring up-to-date course content.
  - ☐ Measures ensuring academic rigor and consistency.
  - ☐ Enrollment data by course, credit hours, and grade distribution.
  - ☐ Instructor information (full-time faculty, adjunct faculty, concurrent faculty).
- ☐ **Program Assessment:**
  - ☐ Program outcomes and assessment methods.
  - ☐ Curriculum Mapping Matrix completion.
  - ☐ Process for program and course level assessment.
  - ☐ Findings from outcomes assessment reports since the last review.
  - ☐ Assessment data supporting findings.

- ☐ **CTE Programs Only:**
  - ☐ Program majors/current concentrators.
  - ☐ Unduplicated prior three-year graduates.
  - ☐ Third-party accreditation (if any).
  - ☐ Additional program needs (facilities, personnel, technology, student support).

## II. SWOT Analysis

- ☐ **Strengths:**
- ☐ **Weaknesses:**
- ☐ **Opportunities:**
- ☐ **Threats:**

## III. Action Plan

- ☐ **Action Plan:**
  - ☐ List of accomplished action items from the previous review.
  - ☐ Pending/not completed items from the last review with rationale.
  - ☐ Justification for the current action plan.

## Recommendation