Department of Chemistry and Physics

#10 Plan cycle - 10

Plan cycle 2023/2024

7/1/23 - 6/30/24

Introduction

Mission:

The mission of the Department of Chemistry & Physics includes the following components: (a) offering a quality educational program for all students enrolled in courses presented by the department, (b) providing an atmosphere conducive to (i) academic inquiry, (ii) the exchange of knowledge, and (iii) the advancement of knowledge through scientific research and/or other scholarly activities, and (c) providing service to the College of Science and Agriculture, the University, and the community. The department seeks to broaden and to enhance the educational experiences for all students enrolled in chemistry courses, to optimize the productivity of the faculty and staff, and to provide service to the academic and industrial communities and to the citizens of Southwest Louisiana.

Institutional Mission Reference:

The department's mission mirrors that of the University in the provision of educational opportunities to students seeking a B.S. degree in chemistry and in providing support courses for students from other disciplines across the campus. In conjunction with the Department of Biology, we offer a M.S. degree in environmental & chemical sciences. We conduct faculty-led research at both the undergraduate and graduate levels and interface many of our research efforts with local industries. The B.S program is approved by the American Chemical Society (ACS) and our program has received laudable reviews from them and from the Louisiana Board of Regents. Students are encouraged to present their research findings in oral or poster form in local, regional, and national meetings, and student publication in scientific peer-reviewed journals is a departmental priority. Faculty serve as ad hoc consultants for a number of local industries, leveraging our technical expertise for the solution of industrial problems. In association with the Southwest Louisiana Crime Laboratory, The Natural Advantage Flavor Plant, Firestone, Axiall, and SASOL North America we offer opportunities for students to intern in and conduct research in practical workplaces prior to graduation. Additionally, through collaboration with the Science Coordinator for Calcasieu Parish, we have a vibrant outreach program to local high schools and elementary schools aimed at sparking and sustaining student interest in science.

Performance Objective 1 Increase enrollment, persistence, retention, and graduation rates for each program offered by the department.

1 Assessment and Benchmark

Benchmark: Increase enrollment by 5% each year, overall and in each undergraduate program offered by the department.

Prior to 2018-2019, the benchmark was maintain the number of chemistry majors at or above 75.

- CHEM - Chemistry
  - BIOC - Biochemistry
  - CHMG - Chemistry and Management (inactive effective 201840)
  - CMED - Chemistry Education Grades 6-12
  - FCHM - Forensic Chemistry
  - GCHM - General Chemistry (effective 202240)
  - PPHA - Prepharmacy
  - PRMD - Premedicine

1.1 Data

2019-2020:

Major	Conc.	Summer						Fall						Spring					
		F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP
CHEM	BIOC	0	1	0	0	1	0	9	4	2	4	19	1	6	4	2	4	16	1
	CHMG	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	0
	CMED	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	0	1	0
	FCHM	0	1	3	1	5	0	5	11	4	7	27	0	2	8	4	7	21	0
	PPHA	2	0	1	1	4	0	7	1	2	2	12	0	3	2	1	3	9	0
	PRMD	1	1	0	0	2	0	1	4	0	1	6	0	0	1	0	2	3	1
	(blank)	1	0	0	1	2	0	2	2	0	2	6	3	1	2	0	1	4	0
Total		**4**	**3**	**4**	**3**	**14**	**0**	**26**	**22**	**8**	**18**	**74**	**4**	**13**	**17**	**7**	**18**	**55**	**2**

2020-2021:

Major	Conc.	Summer						Fall						Spring					
		F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP
CHEM	BIOC	0	1	1	1	3	0	1	9	0	4	14	0	1	4	4	4	13	1
	CHMG	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
	CMED	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2	0
	FCHM	0	1	0	2	3	0	5	5	6	8	24	0	3	2	7	8	20	1
	PPHA	1	0	0	2	3	0	5	4	0	3	12	0	5	4	0	2	11	2
	PRMD	0	0	0	1	1	0	2	1	1	0	4	0	1	1	1	0	3	0
	(blank)	0	0	1	1	2	0	2	1	2	5	10	0	0	0	0	3	3	0
Total		**1**	**2**	**2**	**7**	**12**	**0**	**16**	**20**	**9**	**21**	**66**	**1**	**11**	**11**	**12**	**18**	**52**	**4**

2021-2022:

Major	Conc.	Summer						Fall						Spring					
		F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP
	BIOC	0	0	1	2	3	0	4	1	4	3	12	0	3	0	2	4	9	0

CHEM	CMED	0	0	0	0	0	0	1	1	0	1	3	0	0	0	1	1	2	0
	FCHM	0	0	0	1	1	0	7	1	7	9	24	3	6	1	6	10	23	3
	PPHA	0	0	0	1	1	0	4	2	3	1	10	0	3	2	2	1	8	0
	PRMD	0	0	0	0	0	0	5	1	0	1	7	1	3	2	0	2	7	1
	(blank)	0	0	0	1	1	0	6	1	1	2	10	0	1	4	3	2	10	0
Total		**0**	**0**	**1**	**5**	**6**	**0**	**27**	**7**	**15**	**17**	**66**	**4**	**16**	**9**	**14**	**20**	**59**	**4**

2022-2023:

Major	Conc.	Summer						Fall						Spring					
		F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP
CHEM	BIOC	1	0	0	0	1	0	2	4	1	3	10	1	0	4	1	3	8	1
	CMED	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0
	FCHM	0	0	0	2	2	0	5	2	1	11	19	2	1	2	1	8	12	2
	GCHM	0	0	0	0	0	0	1	3	1	1	6	0	2	2	1	2	7	0
	PPHA	0	0	0	0	0	0	4	1	1	2	8	0	3	0	0	3	6	1
	PRMD	1	0	0	0	1	0	3	3	0	1	7	0	1	1	1	1	4	0
	(blank)	0	1	0	2	3	0	0	3	1	4	8	1	0	1	3	2	6	0
Total		**2**	**1**	**0**	**4**	**7**	**0**	**15**	**16**	**5**	**23**	**59**	**4**	**7**	**10**	**7**	**20**	**44**	**4**

2023-2024:

Major	Conc.	Summer						Fall						Spring					
		F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP	F	S	J	Sr	T	CMP
CHEM	BIOC	0	0	0	1	1	0	3	2	2	1	8	1	1	0	3	0	4	0
	CMED	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	0
	FCHM	0	0	0	3	3	1	4	0	3	5	12	2	4	1	1	5	11	1
	GCHM	1	1	2	0	4	0	2	0	2	3	7	0	0	2	2	2	6	0
	PPHA	0	0	0	0	0	0	6	3	0	2	11	0	3	4	0	2	9	1
	PRMD	0	0	1	1	2	1	1	2	1	0	4	0	0	3	1	1	5	0
	(blank)	0	0	1	2	3	0	0	1	2	2	5	0	0	0	1	3	4	0
Total		**1**	**1**	**4**	**7**	**13**	**2**	**16**	**8**	**10**	**14**	**48**	**3**	**8**	**10**	**8**	**14**	**40**	**2**

Percentage Change between 2018-2019:

Major	Fall	Total	% Change
CHEM	2018	71	4.225%
	2019	74	
Total	**2018**	**71**	**4.225%**
	2019	**74**	

Percentage Change between 2019-2020:

Major	Fall	Total	% Change
	2019	74	

CHEM	2020	66	-10.811%
Total	**2019**	**74**	**-10.811%**
	2020	**66**	

Percentage Change between 2020-2021:

Major	Fall	Total	% Change
CHEM	2020	66	0%
	2021	66	
Total	**2020**	**66**	**0%**
	2021	**66**	

Percentage Change between 2021-2022:

Major	Fall	Total	% Change
CHEM	2021	66	-10.606%
	2022	59	
Total	**2021**	**66**	**-10.606%**
	2022	**59**	

Percentage Change between 2022-2023:

Major	Fall	Total	% Change
CHEM	2022	59	-18.644%
	2023	48	
Total	**2022**	**59**	**-18.644%**
	2023	**48**	

1.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
The data from the 2020-2021 academic year shows that the Department of Chemistry & Physics lost some students from the fall to the spring, this could be do to multiple factors such as the COVID-19 pandemic or the multiple hurricanes and students wanting to go into the workforce. The department will need to increase it's recruitment efforts to fill in this gap. Also, the Chemistry Management concentration doesn't exist anymore, Mr. Angel Garcia was the last chemistry student to graduate with this degree.

2021-2022:
Overall, the department met the benchmark for increasing enrollment in the department by 5% and actually went up a little bit more than 10%. By concentration, biochemistry, chemistry education, and pre-pharmacy didn't meet the benchmark; however, forensic chemistry, pre-medicine, and blank (which is changing to general) all increased by at least 5%. To continue this success and get back to the enrollment the department had back in 2017-2018, the department is working on recruiting methods, while also working on getting labs updated so that the department can be competitive with its competition.

2022-2023:
The department did not meet its goal of increasing enrollment, experiencing a 10% decrease instead. Enrollment declines were noted across several concentrations: biochemistry and chemistry education each lost one student; pre-pharmacy saw a decrease of two students; pre-med and forensic chemistry decreased by three and 11 students, respectively. Only the general chemistry concentration saw growth,

with an increase of three students. The department plans to intensify its recruiting efforts and review the curriculum to enhance its appeal to students.

2023-2024:
The department did not meet its goal of increasing enrollment. The department is in the process of making changes to curriculum and also planning to organize outreach events in middle and high schools in the area.

2 Assessment and Benchmark

Benchmark: Increase enrollment by 5% each year, overall and in each graduate program offered by the department.

- ECCH - Environmental and Chemical Sciences
  - CHEM - Chemistry

2.1 Data

Graduate Enrollment:

Major	Conc.	2018-2019			2019-2020			2020-2021			2021-2022			2022-2023		
		U	F	S	U	F	S	U	F	S	U	F	S	U	F	S
ECCH	CHEM	0	7	6	2	4	4	0	1	2	1	2	2	0	2	3

Major	Conc.	2023-2024			2024-2025			2025-2026			2026-2027			2027-2028		
		U	F	S	U	F	S	U	F	S	U	F	S	U	F	S
ECCH	CHEM	1	4	4												

Graduate Completers:

Major	Conc.	2018-2019			2019-2020			2020-2021			2021-2022			2022-2023		
		U	F	S	U	F	S	U	F	S	U	F	S	U	F	S
ECCH	CHEM	0	3	1	1	0	1	0	0	0	1	0	0	0	0	1

Major	Conc.	2023-2024			2024-2025			2025-2026			2026-2027			2027-2028		
		U	F	S	U	F	S	U	F	S	U	F	S	U	F	S
ECCH	CHEM	0	0	2												

Percentage Change between 2020-2021:

Major	Fall	Total	% Change
ECCH	2020	1	100%
	2021	2	

Percentage Change between 2021-2022:

Major	Fall	Total	% Change
ECCH	2021	2	0.0%
	2022	2	

Percentage Change between 2022-2023:

Major	Fall	Total	% Change
ECCH	2022	2	100%
	2023	4	

2.1.1 Analysis of Data and Plan for Continuous Improvement

2022-2023:
The chemistry master's program, in collaboration with agricultural sciences and biology, is experiencing gradual growth. This spring, the program expanded from one to three graduate students, marking the first graduation in several years (Ms. Amy Reed). The department anticipates potentially enrolling up to five graduate students in Fall 2023.

2023-2024:
Out of five graduate students, two graduated in Spring 2024. The department plans to recruit more graduate students.

3 Assessment and Benchmark

Benchmark: Conduct at least four recruitment sessions per year for entering students, this includes seminars at high schools, science demos, and invited open houses.

3.1 Data

Academic Year	# of recruitment sessions
2013-2014	8
2014-2015	11
2015-2016	10
2016-2017	10
2017-2018	—
2018-2019	—
2019-2020	—
2020-2021	2
2021-2022	8
2022-2023	7
2023-2024	8

3.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
Recruitment efforts went down this year due to the COVID-19 pandemic and multiple hurricanes that hit the immediate area.

2021-2022:
Recruitment efforts where increased and the benchmark was met. The department went to all preview days hosted by the University, as well as career expo, the regional science fair, chem expo, and Gradfest. If the department keeps up this effort we will re-examine the benchmark and look at increasing it.

2022-2023:
The department and college made a major push this year to go out to local parish career and college fairs, as well as travel to several local high schools such as Starks and Sulphur. The department also worked with several local middle and elementary schools on science demonstrations. The department wants to work towards a summer camp for Chemistry & Physics.

2023-2024: The department was involved in all preview days, chem expo, science fair, and some elementary middle and high school activities. The department planning on continuous improvement.

4 Assessment and Benchmark

Benchmark: Maintain number of students in CHEM 203 (Quantitative Analysis) at or above 15.

CHEM 203 is a majors-only course that indicates the “health” of our freshman to sophomore retention.

4.1 Data

Academic Year	# of students in CHEM 203
2013-2014	19
2014-2015	19
2015-2016	20
2016-2017	27
2017-2018	14
2018-2019	14
2019-2020	19
2020-2021	12
2021-2022	14
2022-2023	11
2023-2024	9

4.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:
The data is trending upward. The department will look to continue this success.

2020-2021:
The data is trending downward, CHEM 203 is at a low point right now, 80% of where it needs to be. This could be due to the COVID-19 pandemic and multiple hurricanes damaging Kirkman Hall, as well as enrollment being low around the campus.

2021-2022:
The benchmark was almost met in CHEM 203. This may be a high point for the department for the future depending on how enrollment turns out over the next couple of years.

2022-2023:
The benchmark wasn't met for the CHEM 203. Enrollment is continuing to trend downward and recruiting efforts have been increased, working on holding steady for recruitment and increase retention efforts.

2023-2024:
CHEM 203 benchmark was not met. The department is working on recruitment and retention.

5 Assessment and Benchmark

Benchmark: Maintain the total number of students in CHEM 390 + CHEM 380 at or above 10.

5.1 Data

Academic Year	# of students in CHEM 380	# of students in CHEM 390	# of students in CHEM 380 or 390
2013-2014	20	—	20
2014-2015	7	8	15
2015-2016	7	10	17

2016-2017	0	45	45
2017-2018	9	20	29
2018-2019	0	23	23
2019-2020	0	10	10
2020-2021	0	20	20
2021-2022	0	11	11
2022-2023	0	9	9
2023-2024	0	13	13

5.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:
Physical chemistry numbers decreased down to 10 students. This aligns with the 14 students in CHEM 203 and means that the department needs to work on retainment and increase recruitment efforts.

2020-2021:
This was the last semester that chemical engineers will be taking CHEM 390 which explains the increase in enrollment.

2021-2022:
The benchmark was met in CHEM 390. CHEM 380 wasn't offered. The enrollment in CHEM 390 is lower as expected because chemical engineering students aren't required to take the course anymore.

2022-2023:
The benchmark wasn't met for CHEM 380/390. The enrollment may increase because chemical engineering students are being informed that they can use CHEM 390 for the chemistry minor. The department did try offering CHEM 390 in the Summer 2023 and as of 5/10/2023 no student has registered.

2023-2024:
The enrollment slightly increased. CHEM 380 was not offered. CHEM 380 will be offered in Fall 2024.

6 Assessment and Benchmark

Benchmarks:

- A persistence rate (students retained from Fall Y1 to Spring Y1) of 85%.
- A retention rate of 70% from Y1 to Y2.
- A retention rate of 55% from Y1 to Y3.
- A retention rate of 45% from Y1 to Y4.
- A 4-year graduation rate of 35%.
- A 5-year graduation rate of 40%.
- A 6-year graduation rate of 45%.

Major:

- CHEM - Bachelor of Science in Chemistry

6.1 Data

Fall 2012 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	28	22	78.6	15	53.6	9	32.1	5	17.9	4	14.3	6	21.4	6	21.4

*3 students were previously undeclared before declaring CHEM.

Fall 2013 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	35	21	60.0	9	25.7	7	20.0	4	11.4	3	8.6	3	8.6	3	8.6

Fall 2014 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	25	17	68.0	13	52.0	10	40.0	9	36.0	4	16.0	5	20.0	5	20.0

Fall 2015 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	32	16	50.0	13	40.6	6	18.8	4	12.5	3	9.4	3	9.4	3	9.4

Fall 2016 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	29	18	62.1	8	27.6	3	10.3	1	3.4	0	0.0	0	0.0	0	0.0

Fall 2017 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	31	21	67.7	9	29.0	6	19.3	4	12.9	2	6.5	3	9.7	3	9.7

Fall 2018 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	27	15	55.6	12	44.4	7	25.9	6	22.2						

Fall 2019 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	25	13	52.0	10	40.0	7	28.0	7	28.0						

Fall 2020 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	18	14	77.8	9	50.0	3	16.7	2	11.1						

Fall 2021 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	18	15	83.3	7	38.9	4	22.2								

Fall 2022 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	16	10	62.5	7	43.8										

Fall 2023 Cohort:

Major Retention

Major	Cohort Size	Persistence Rate		Retention Rate						Graduation Rate					
				Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%

CHEM	14	10	71.4											

Summary of Presistence, Rentention, and Graduation Rates:

Fall Cohort	Cohort Size	Persistence Rate	Retention Rate			Graduation Rate		
			Y1 to Y2	Y1 to Y3	Y1 to Y4	4-Year	5-Year	6-Year
2012	28	78.6	53.6	32.1	17.9	14.3	21.4	21.4
2013	35	60.0	25.7	20.0	11.4	8.6	8.6	8.6
2014	25	68.0	52.0	40.0	36.0	16.0	20.0	20.0
2015	32	50.0	40.6	18.8	12.5	9.4	9.4	9.4
2016	29	62.1	27.6	10.3	3.4	0.0	0.0	0.0
2017	31	67.7	29.0	19.3	12.9	6.5	9.7	9.7
2018	27	55.6	44.4	25.9	22.2			
2019	25	52.0	40.0	28.0	28.0			
2020	18	77.8	50.0	16.7	11.1			
2021	18	83.3	38.9	22.2				
2022	16	62.5	43.8					
2023	14	71.4						
Average	**24.8**	**65.7**	**40.5**	**23.3**	**17.3**	**9.1**	**11.5**	**11.5**

6.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:
Failed to meet the benchmark. This could be due to the start of the COVID-19 pandemic that started in March of 2020. Will re-evaluate when major event doesn't occur.

2020-2021:
Met benchmark, however it could have been due to the multiple hurricanes and teaching online that lead to an increase in cheating in the department. Will re-evaluate when major event doesn't occur.

2021-2022:
Benchmark was met for cohorts in 2017, 2018, and 2019; however, it's just short in 2020. This could be due to the transition back to face-to-face courses versus completely online courses. The department will re-evaluate after one more year to see if this trend holds for the 2020 and 2021 cohort.

2022-2023:
The benchmark for persistence has not been met for the last several cohorts, the same is true for retention rates across the past several cohorts (Fall of 2019 and on). The department is looking into ways to help students be more successful from having Graduate Assistant's help with chemistry knowledge in the early parts of General Chemistry I and II, to having a summer camp that helps students bridge some of their missing knowledge.

2023-2024:
We are working on curriculum changes. Additionally, planning to conduct chemistry and physics related outreach programs to increase enrollment.

Performance Objective 2 Provide a comprehensive curriculum that reflects disciplinary foundations and remains responsive to contemporary developments, student and workforce demand, and university needs and aspirations.

1 Assessment and Benchmark

Benchmark: Dedicate at least two faculty meetings per semester to discuss curricular issues.

1.1 Data

Academic Year	# of faculty meetings dedicated to curricular matters
2018-2019	—
2019-2020	—
2020-2021	1
2021-2022	2
2022-2023	3
2023-2024	3

Curricular innovation/modification:
2019-2020:

2020-2021:
At the start of the fall semester, industry based chemistry courses were discussed so that chemistry and physics can help students who have difficulty with engineering. As well as, recruitment efforts for graduate students for Chemistry and Physics.

2021-2022:
At the start of fall and spring semester, course offerings and rotations were discussed. Graduate student needs were also a topic of discussion.

2022-2023:
Three different departmental meetings were held throughout the year. Topics covered varied from increasing enrollment, where to do recruiting, and program reviews.

2023-2024:
Three department meetings were held to discuss improve enrollment and retention.

1.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
The benchmark wasn't met due to the multiple hurricanes during the fall semester and a need to regroup and focus on the fundamentals of the curriculum as it stands now. Curriculum changes will be discussed again starting in the Fall 2021 semester.

2021-2022:
The benchmark was met this year. To continuously improve, the department may need to meet with coordinators of each discipline to increase efforts to help students and gain more students into our programs.

2022-2023:
The benchmark was met for the academic year. To improve the department, we may need to think about sub-groups to help discussions be more productive.

2023-2024:
The benchmark was met, and the whole faculty is working on making changes to curriculum while maintaining American chemical society program approval guidelines.

2 Assessment and Benchmark

Benchmark: Probe stakeholders regarding the adequacy of student preparation.

2.1 Data

2019-2020:

2020-2021:
Currently the department doesn't have a survey to ask students if they've applied for professional school admittance or if they've been interviewed for an industry position. The college is working on creating an exit survey to gather data. Currently 1/5 students graduating in the Spring 2021 has been accepted to medical school.

2021-2022:
The department has heard from a few previous graduates that students are prepared. However, students do need more experience on instruments.

2022-2023:
The department decided to add on former graduates and go to internship soiree and career expo and talk to local industry on needs for chemistry students. Hands on experience with instrumentation was still a large concern.

2023-2024:
Our recent graduates have entered both graduate programs and the chemical industry. CHEM 203 and CHEM 303 provide hands-on experience with instrumentation, while chemical research fosters problem-solving skills in the laboratory. We are planning to introduce an analytical chemistry lab section to give students additional experience with analytical techniques and methods.

2.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
Currently, the college of SEM is working on creating an exit survey for the departments in CoSEM to use to gather data like this. However, of the five graduates, the department knows that one of them has been accepted to a medical school.

2021-2022:
The benchmark was met for this year. Due to several previous students discussing with the department that instrumentation is largely what is missing and needs to be improved. Dr. Vaughan and Vidura both have added in instrumentation usage into courses to increase student readiness. After next year's cycle, the department will hope to maintain good student reports from local industry and former students.

2022-2023:
The benchmark was met for this academic year. The department is working on filling the analytical professor position that has been vacant for a year, this should help increase knowledge for students in analytical chemistry, especially instrumentation.

2023-2024:
The benchmark was met for this academic year. The analytical professor is planning to introduce analytical chemistry lab component and already introduced chemical instrumentation and method development for CHEM 303.

Performance Objective 3 Maintain all requirements for program approval by the American Chemical Society

1 Assessment and Benchmark

Benchmark: Dedicate at least one meeting per semester with the chemistry faculty to discuss and ensure program requirements for approval.

1.1 Data

Academic Year	# of faculty meetings dedicated to ACS matters
2018-2019	2

2019-2020	2
2020-2021	1
2021-2022	2
2022-2023	1.5
2023-2024	2

1.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:
Since the desired level is met, we will continue to work on maintaining ACS approval.

2020-2021:
The first meeting of the year was to discuss programs and how to deal with ACS approval. The second meeting was to discuss with faculty the status of the campus, as well as to thank faculty for all of there work through the difficulties that had faced the department. ACS never came up. Will make sure to put ACS on the agenda in future meetings.

2021-2022:
The department met the benchmark. The department will continue to meet and monitor any changes to ACS guidelines. This is why in Spring 2023, CHEM 480 (Polymer Chemistry) will be offered for the first time in several years.

2022-2023:
The department had three meetings, ACS was mentioned during one and was more focused in the third meeting of the year. The ACS documentation was prepared by the Department and the College office. This is why CHEM 415 (Green sustainable Chemistry), was reactivated and is being offered in the Fall 2023 semester.

2023-2024:
Annual report and periodic report were submitted to ACS and department is maintaining ACS accreditation active status

2 Assessment and Benchmark

Benchmark: Complete the Annual Report to ACS in a timely fashion.

2.1 Data

2019-2020:
We will complete and submit our report before the deadline.

2020-2021:
Report needs to be submitted to get ACS probation lifted.

2021-2022:
The report was submitted on time.

2022-2023:
The report is in progress and will be submitted on time.

2023-2024:
Annual and periodic reports submitted.

2.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:
Since the desired level is met, we will continue to work on maintaining ACS approval.

2020-2021:
The ACS report needs to be updated to get the department off probation.

2021-2022:
The ACS report was submitted on time and the department is waiting to hear back about any changes or concerns for ACS.

2022-2023:
The ACS report will be submitted on time, last year's report information was sent to the ACS student chapter president and not the Department Head.

2023-2024:
Annual report is submitted to ACS by the department head and status is active.

Performance Objective 4 Demonstrate excellence in teaching in order to enhance student recruitment, retention, and graduation.

1 Assessment and Benchmark

Benchmark: All faculty will have SEIs above 75%.

Prior to 2022-2023, the benchmark was all faculty will have SEIs above 70%.

1.1 Data

Academic Year	Faculty meeting SEI goal	
	#	%
2018-2019	—	100%
2019-2020	—	100%
2020-2021	9/9	100%
2021-2022	10/10	100%
2022-2023	10/10	100%
2023-2024	10/11	91%

1.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:
All the faculty met the benchmark.

2020-2021:
All faculty whether tenured, tenure-track, or non-tenure track have met the requirement of 70% on their SEIs. This number may need to be increased to 75% due to the lowest faculty member being around 80%, will discuss with the dean of the college to help improve instruction in the department of chemistry & physics.

2021-2022:
All faculty including tenure-track, tenured, and non-tenure track met the benchmark. To keep with continuous improvement, please increase the benchmark to 75% for the 2022-2023 academic year.

2022-2023:
The benchmark was met, however one faculty member was on the line at exactly 75%, so the percentages may change over the next academic year. The department will monitor all student issues and see if there are ways to help the faculty with professional development.

2023-2024:
One faculty member did not meet the benchmark, while all others did. The department is addressing student-related issues and providing support for faculty professional development.

Performance Objective 5 Demonstrate commitment to research and scholarly activity.

1 Assessment and Benchmark

Benchmark: At least 50% of tenure-track faculty will have a research program that engages undergraduates and/or graduate students.

1.1 Data

Academic Year	# of tenure-track faculty with a research program that engages students	Chemistry faculty with a research program that engages students		Physics faculty with a research program that engages students	
		#	%	#	%
2018-2019	6/6	6/6	100%	2/3	75%
2019-2020	—	—	—	—	—
2020-2021	2/3	6/7	86%	0/2	0%
2021-2022	2/3	2/2	100%	0/1	0%
2022-2023	3/3	5/6	83.33%	1/3	33%
2023-2024	6/6	6/6	100%	1/3	33%

1.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
Two of the three tenure-track faculty members are creating and engaging students in a research program. The third tenure-track faculty member was hired a week and a half before hurricane Laura hit McNeese's campus, which has not left him much time to get a research program started. We'll also monitor the new assistant professor for physics position to see how they will progress and help get a research program started for physics.

2021-2022:
Both tenure-track faculty members for chemistry have programs that engage undergraduate and graduate students. The tenure-track member for physics has attempted to start an undergraduate research program, but hasn't been fully successful. To improve on this, the department will make a greater effort to include the physics tenure-track member in Endowed Professorship writings as well as some support for external funding chances.

2022-2023:
Most faculty in Chemistry have a research program that engages students, our tenure-track faculty are doing well to engage students. The physics tenure-track faculty member has gotten started working on undergraduate research with several students across chemistry and engineering.

2023-2024:
Most faculty in chemistry except two instructors have research programs. In physics, one tenure-track faculty has a research program.

2 Assessment and Benchmark

Benchmark: 100% of qualified students seeking a research opportunity in the department will be accommodated.

2.1 Data

Academic Year	Qualified students seeking a research opportunity that were accommodated	
	#	%
2018-2019	25/25	100%
2019-2020	—	—
2020-2021	23/23	100%
2021-2022	25/25	100%
2022-2023	28/28	100%

2023-2024	31/31	100%

2.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
Chemistry majors and other majors who requested to conduct research with chemistry and physics faculty were allowed to do so. The department has re-established a research permission form for the summer of 2021 and onward. It has allowed us to keep better track of students who have registered for the undergraduate research course and which faculty member they're conducting research with.

2021-2022:
All students who requested a research assignment where allowed into either CHEM 251 or 451, which means that the benchmark was met. This also includes several non-chemistry majors, who were using the research to complete a minor in chemistry. To continue improvement, the department hopes to start having some students involved in some physics research in the future.

2022-2023:
All students who requested undergraduate research or graduate research where allowed into either CHEM 251, 451, or 690, therefore the benchmark was met. Several students did research in various areas from organic chemistry to applied/computational physics.

2023-2024:
All students requested undergraduate research were registered for either CHEM 251 or CHEM 451 and performed conducted research with a faculty member. As a result benchmark was met.

3 Assessment and Benchmark

Benchmark: The program will generate at least five peer-reviewed publications per year.

3.1 Data

Academic Year	# of peer-reviewed publications generated
2018-2019	9
2019-2020	—
2020-2021	7
2021-2022	5
2022-2023	7
2023-2024	8

3.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
The department of Chemistry and Physics had seven peer-reviewed papers submitted. In the future, the department will not lean so heavily on one faculty member to do the majority of publishing papers.

2021-2022:
The department met the benchmark. To improve on the number of publications, the department will try to increase participation from the physics faculty as well as try for external funding sources through the Board of Regents that can lead to increased publications.

2022-2023:
The benchmark was met. To improve the number of publications the department is working on hiring a new analytical chemist, as well as helping support its terminal degree faculty in physics.

2023-2024:
The benchmark was met. The department is working on more manuscripts to improve the number of publications.

4 Assessment and Benchmark

Benchmark: At least 50% of the tenure-track faculty (or students from their research groups) will present research findings at state, regional or national scientific meetings.

4.1 Data

Academic Year	Tenure-track faculty that presented research findings at state, regional or national scientific meetings	
	#	%
2018-2019	3/7	42.9%
2019-2020	—	—
2020-2021	2/3	66%
2021-2022	1/3	33%
2022-2023	2/3	66%
2023-2024	3/4	75%

4.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
Two of the three tenure-track faculty members where able to present at virtual conferences this academic year. In the future, we will try for a higher percentage, especially with a new assistant professor of physics position being filled.

2021-2022:
One of the three tenure-track faculty members had a student present at the national ACS conference, but the benchmark wasn't met. To improve on this, the department will have a meeting with tenure-track faculty about meeting benchmarks for research and presentations so that the department can offer students these different experiences.

2022-2023:
The benchmark was met this year, both chemistry tenure-track faculty had students present research at state conferences. The department is looking into possible places for students to present research in physics, the interest is growing just not as large as other areas.

2023-2024:
The benchmark was met this year and faculty is aiming to submit abstracts for more conferences.

5 Assessment and Benchmark

Benchmark 1: The program will apply for at least seven grants per year.

Prior to 2016-2017, the benchmark was five grants.

Benchmark 2: The program will obtain or administer at least three grants per year.

5.1 Data

Academic Year	# of grant applications	# of grants administered
2018-2019	6	5
2019-2020	—	—
2020-2021	8	7

2021-2022	10	7
2022-2023	7	6
2023-2024	11	8

5.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
Most faculty received endowed professorships, as well as, Dr. Vidura receiving a Shearman grant. Dr. Merchant has applied for a grant himself, it however has not been administered. We will continue to try and get more grants for the department of chemistry and physics.

2021-2022:
The benchmark was met by most of the faculty receiving endowed professorships, as well as, Dr. Merchant receiving a Shearman grant. The department also had a grant application done by Dr. Vaughan and two other done by Dr. McGraw that didn't receive funding. In the future the department plans to work closely with the Office of Research and Sponsored Programs to get more applications for external grants, especially since this upcoming year chemistry is on the Board of Regents cycle.

2022-2023:
The benchmark was met, however the department is trending in a downward direction, hopefully with a new faculty member that will help increase some of the external funding chances for the department.

2023-2024:
The benchmark was met. Faculty is aiming at submitting more grant proposals.

Performance Objective 6 Engage in collaborative ventures and campus and community activities which enhance economic development, cultural and artistic growth, and or educational experiences for the SWLA region and beyond.

1 Assessment and Benchmark

Benchmark: The department will participate in at least five community activities such as lectures/talks to civic groups to promote science in SWLA.

Prior to 2016-2017, the benchmark was three community activities

1.1 Data

Academic Year	# of science promoting community activities attended by faculty
2018-2019	—
2019-2020	—
2020-2021	—
2021-2022	5
2022-2023	6
2023-2024	5

1.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
It wasn't possible for community engagement, due to the COVID-19 pandemic and multiple hurricanes in the local area.

2021-2022:

The department met with benchmark. To make sure the department continues on this path, the department head will meet with faculty about engagement and work on re-establishing the summer camps that Chemistry and Physics used to offer.

2022-2023:
The benchmark was met. Department is planning to engage on more outreach programs and activities. The benchmark was met this year, with a variety of faculty and staff working on community engagement. Will need to work with Enrollment Management to get more opportunities like this.

2023-2024:
The benchmark was met. The department intends to increase it's involvement in outreach activities.

2 Assessment and Benchmark

Benchmark: Faculty will either host or visit at least six high/middle/elementary schools to conduct science shows.

2.1 Data

Academic Year	# of science shows delivered by faculty
2013-2014	8
2014-2015	9
2015-2016	9
2016-2017	—
2017-2018	—
2018-2019	—
2019-2020	—
2020-2021	0
2021-2022	1
2022-2023	4
2023-2024	4

*Hosted two high schools and visited seven others.

2.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
It wasn't possible for high school or middle school visits in 2020 because of the COVID-19 pandemic and schools going to virtual teaching, and wasn't possible in spring of 2021 due to damage to most of the local area by hurricanes Laura and Delta.

2021-2022:
The benchmark wasn't met for the year. To make sure that the benchmark is met for the next year, the department will reach out to local schools and gauge their interest in having science visits.

2022-2023:
The benchmark wasn't met again; however, the number of events has improved. The department will work with the Office of Enrollment Management to gain more opportunities and conduct more science based demonstrations.

2023-2024:
Benchmark wasn't met. The department is planning on more outreach activities.

3 Assessment and Benchmark

Benchmark: The department will be engaged in at least three substantive partnerships with local industry.

3.1 Data

Academic Year	# of substantive partnerships with local industry
2018-2019	—
2019-2020	—
2020-2021	1
2021-2022	2
2022-2023	3
2023-2024	3

3.1.1 Analysis of Data and Plan for Continuous Improvement

2019-2020:

2020-2021:
After the start of the COVID-19 pandemic, the Department of Chemistry and Physics worked with the Department of Engineering and Computer Science to help make test swabs for COVID-19 patients with a local hospital. However, the pandemic and the multiple hurricanes made it very difficult to work with other local industries.

2021-2022:
The department didn't meet the benchmark; however, it did increase local industry partnerships. The department will work on meeting with local industry, especially with an industry collaboration being part of the upcoming Board of Regents cycle.

2022-2023:
The department met the benchmark for the academic year. The department had a tour of Westlake Chemical as well as has several students interning with several local industry leaders, such as Sasol, this is evident by the seven students registered in CHEM 490 (Chemistry Internship). The department will continue to work on building these relationships.

2023-2024:
The department met the benchmark. However, we're working on more industrial collaborations.