



## Chemistry and Physics

#8 Plan cycle - 8  
Plan cycle 2021/2022  
7/1/21 - 6/30/22

## 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.



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
<b>Total</b>		<b>4</b>	<b>3</b>	<b>4</b>	<b>3</b>	<b>14</b>	<b>0</b>	<b>26</b>	<b>22</b>	<b>8</b>	<b>18</b>	<b>74</b>	<b>4</b>	<b>13</b>	<b>17</b>	<b>7</b>	<b>18</b>	<b>55</b>	<b>2</b>

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
<b>Total</b>		<b>1</b>	<b>2</b>	<b>2</b>	<b>7</b>	<b>12</b>	<b>0</b>	<b>16</b>	<b>20</b>	<b>9</b>	<b>21</b>	<b>66</b>	<b>1</b>	<b>11</b>	<b>11</b>	<b>12</b>	<b>18</b>	<b>52</b>	<b>4</b>

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
CHEM	BIOC	0	0	1	2	3	0	4	1	4	3	12	0	3	0	2	4	9	0
	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
<b>Total</b>		<b>0</b>	<b>0</b>	<b>1</b>	<b>5</b>	<b>6</b>	<b>0</b>	<b>27</b>	<b>7</b>	<b>15</b>	<b>17</b>	<b>66</b>	<b>4</b>	<b>16</b>	<b>9</b>	<b>14</b>	<b>20</b>	<b>59</b>	<b>4</b>

Percentage Change between 2017-2018:

Major	Fall	Total	% Change
CHEM	2017	88	-19.318%
	2018	71	
<b>Total</b>	<b>2017</b>	<b>88</b>	<b>-19.318%</b>
	<b>2018</b>	<b>71</b>	

Percentage Change between 2018-2019:

Major	Fall	Total	% Change
CHEM	2018	71	4.225%
	2019	74	
<b>Total</b>	<b>2018</b>	<b>71</b>	<b>4.225%</b>
	<b>2019</b>	<b>74</b>	

Percentage Change between 2019-2020:

Major	Fall	Total	% Change
CHEM	2019	74	-10.811%
	2020	66	
<b>Total</b>	<b>2019</b>	<b>74</b>	<b>-10.811%</b>
	<b>2020</b>	<b>66</b>	

Percentage Change between 2020-2021:

Major	Fall	Total	% Change
CHEM	2020	66	0%
	2021	66	
<b>Total</b>	<b>2020</b>	<b>66</b>	<b>0%</b>
	<b>2021</b>	<b>66</b>	

### 1.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

2018-2019:

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 17-18, 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:

## 2 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.

### 2.1 Data

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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

### 2.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

2018-2019:

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 were 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.

## 3 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.

### 3.1 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

### 3.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

The data is slightly low the department will focus on retainment and recruitment to help increase enrollment in the course.

2018-2019:

The data is below the benchmark but is holding steady and retainment and recruitment will be increased.

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.

#### 4 Assessment and Benchmark

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

##### 4.1 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

##### 4.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

Physical chemistry numbers are holding, primarily through CHEM 390 since CHEM 380 was last offered in Fall of 2017 with only 7 students enrolled in the course.

2018-2019:

Physical chemistry numbers increased in CHEM 390 only. This could be due to some chemical engineering students taking the course.

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.

#### 5 Assessment and Benchmark

Benchmarks:

- A persistence rate (retained students 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

### 5.1 Data

2012:

Major	Cohort Size	Same Major?	Persistence Rate		Retention Rate						Graduation Rate					
					Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	28	Same	22	78.6	15	53.6	9	32.1	5	17.9	4	14.3	6	21.4	6	21.4
		Changed	4	14.3	8	28.6	11	39.3	12	42.9	5	17.9	8	28.6	8	28.6
		<b>Total</b>	<b>26</b>	<b>92.9</b>	<b>23</b>	<b>82.1</b>	<b>20</b>	<b>71.4</b>	<b>17</b>	<b>60.7</b>	<b>9</b>	<b>32.1</b>	<b>14</b>	<b>50.0</b>	<b>14</b>	<b>50.0</b>

\*3 students were previously undeclared before declaring CHEM.

2013:

Major	Cohort Size	Same Major?	Persistence Rate		Retention Rate						Graduation Rate					
					Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	35	Same	21	60.0	9	25.7	7	20.0	4	11.4	3	8.6	3	8.6	3	8.6
		Changed	9	25.7	12	34.3	14	40.0	12	34.3	6	17.1	11	31.4	11	31.4
		<b>Total</b>	<b>30</b>	<b>85.7</b>	<b>21</b>	<b>60.0</b>	<b>21</b>	<b>60.0</b>	<b>16</b>	<b>45.7</b>	<b>9</b>	<b>25.7</b>	<b>14</b>	<b>40.0</b>	<b>14</b>	<b>40.0</b>

2014:

Major	Cohort Size	Same Major?	Persistence Rate		Retention Rate						Graduation Rate					
					Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	25	Same	17	68.0	13	52.0	10	40.0	9	36.0	4	16.0	5	20.0	5	20.0
		Changed	5	20.0	5	20.0	7	28.0	8	32.0	2	8.0	7	28.0	8	32.0
		<b>Total</b>	<b>22</b>	<b>88.0</b>	<b>18</b>	<b>72.0</b>	<b>17</b>	<b>68.0</b>	<b>17</b>	<b>68.0</b>	<b>6</b>	<b>24.0</b>	<b>12</b>	<b>48.0</b>	<b>13</b>	<b>52.0</b>

2015:

Major	Cohort Size	Same Major?	Persistence Rate		Retention Rate						Graduation Rate					
					Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	32	Same	16	50.0	13	40.6	6	18.8	4	12.5	3	9.4	3	9.4	3	9.4
		Changed	8	25.0	8	25.0	13	40.6	8	25.0	5	15.6	8	25.0	8	25.0
		<b>Total</b>	<b>24</b>	<b>75.0</b>	<b>21</b>	<b>65.6</b>	<b>19</b>	<b>59.4</b>	<b>12</b>	<b>37.5</b>	<b>8</b>	<b>25.0</b>	<b>11</b>	<b>34.4</b>	<b>11</b>	<b>34.4</b>





2021:

Major	Cohort Size	Same Major?	Persistence Rate		Retention Rate						Graduation Rate					
					Y1 to Y2		Y1 to Y3		Y1 to Y4		4-Year		5-Year		6-Year	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%
CHEM	18	Same	15	83.3												
		Changed	3	16.7												
		<b>Total</b>	<b>18</b>	<b>100</b>												

### 5.1.1 Analysis of Data and Plan for Continuous Improvement

2018-2019:

Benchmark was met. Will continue on current plan.

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.

## 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
2015-2016	4
2016-2017	4
2017-2018	4
2018-2019	—
2019-2020	—
2020-2021	1
2021-2022	2

Curricular innovation/modification:

2017-2018:

2018-2019:

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.

### **1.1.1 Analysis of Data and Plan for Continuous Improvement**

2017-2018:

2018-2019:

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.

## **2 Assessment and Benchmark**

Benchmark: Probe stakeholders regarding the adequacy of student preparation.

### **2.1 Data**

2017-2018:

2018-2019:

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.

### **2.1.1 Analysis of Data and Plan for Continuous Improvement**

2017-2018:

2018-2019:

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 5 graduates, the department knows that 1 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.

### **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
2016-2017	2
2017-2018	2
2018-2019	2
2019-2020	2
2020-2021	1
2021-2022	2

##### **1.1.1 Analysis of Data and Plan for Continuous Improvement**

2017-2018:

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

2018-2019:

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

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 their 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.

#### **2 Assessment and Benchmark**

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

##### **2.1 Data**

2017-2018:

Our report was completed and submitted before the deadline and was accepted without comment.

2018-2019:

Our report was completed and submitted before the deadline and was accepted without comment.

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.

### 2.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

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

2018-2019:

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

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.

## 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 70%.

#### 1.1 Data

Academic Year	Faculty meeting SEI goal	
	#	%
2013-2014	—	100%
2014-2015	—	100%
2015-2016	—	100%
2016-2017	—	100%
2017-2018	—	100%
2018-2019	—	100%
2019-2020	—	100%
2020-2021	9/9	100%
2021-2022	10/10	100%

### 1.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

All the faculty met the benchmark.

2018-2019:

All the faculty met the benchmark.

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.

## 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	
		#	%	#	%
2013-2014	6/12	6/7	86%	0/5	0%
2014-2015	6/7	6/6	100%	0/1	0%
2015-2016	6/7	6/6	100%	0/1	0%
2016-2017	5/5	6/6	100%	0/1	0%
2017-2018	6/6	6/6	100%	0/1	0%
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%

#### 1.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

Since the goal is met, we will continue to stress the importance of research and scholarly activity and provide faculty with the support and opportunity needed to be effective researchers. The physicists will be actively encouraged to enhance their scholarly output. The tremendous loss of faculty in this department has impacted the ability to maintain research programs.

2018-2019:

All the faculty, including some instructors, are involved in the research. This year, the physics faculty, Drs. Stinnet and Sun had participated in a large scale, undergrad driven research program. This is a very good development. The department continues to support the faculty to continue to do research and involve both graduate and undergraduate students in every way possible.

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.

## 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	
	#	%
2013-2014	—	100%
2014-2015	—	100%
2015-2016	—	100%
2016-2017	—	100%
2017-2018	—	100%
2018-2019	25/25	100%
2019-2020	—	—
2020-2021	23/23	100%
2021-2022	25/25	100%

#### 2.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

We will continue to make research opportunities available.

2018-2019:

All the Chemistry majors have availed the research opportunities provided by the department. Research is part of their curriculum, usually, spans at least two semesters. The reported number (25) in 2018-2019 reflects those students who had registered for CHEM 451 classes.

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 reestablished 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 were 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.

## 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
2013-2014	9
2014-2015	10

2015-2016	9
2016-2017	7
2017-2018	13
2018-2019	9
2019-2020	—
2020-2021	7
2021-2022	5

### 3.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

We will continue to support faculty excellence in research and to assist in research dissemination through publications and presentations.

2018-2019:

The department had published 9 research articles in peer-reviewed and CAS indexed journals in the year 2018-2019. Note that the department has no major chemical instruments (like NMR, GC-MS, etc) to support either research or teaching. Despite these limitations, some of our faculty had managed to do fantastic work. The coming year is going to be better as the department is acquiring new instruments and new faculty.

2019-2020:

2020-2021:

The department of Chemistry and Physics had 7 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.

## 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	
	#	%
2013-2014	4/8	50%
2014-2015	3/8	37.5%
2015-2016	2/8*	25%
2016-2017	3/7	42.9%
2017-2018	5/7	71.4%
2018-2019	3/7	42.9%
2019-2020	—	—
2020-2021	2/3	66%
2021-2022	1/3	33%

\*Two of the eight tenure-track faculty or their research students presented at The Regional American Chemical



Society and the National American Chemical Society meetings. We did not attend the Louisiana Academy of Sciences meeting this year due to a last minute cancellation due to regional flooding. Three faculty presented research results at other national and international meetings.

#### 4.1.1 Analysis of Data and Plan for Continuous Improvement

2018-2019:

Due to the severe budget limits only three faculty Drs Merchant, Boggavarapu and Bussan had participated in national/international level conferences, invited talks. Efforts will be made to increase the participation of students and faculty in various conferences.

We will continue to support faculty excellence in research and to assist in research dissemination through oral and poster presentations at scientific meetings.

2019-2020:

2020-2021:

Two of the three tenure-track faculty members were 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.

## 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
2013-2014	11	13
2014-2015	11	12
2015-2016	9	10
2016-2017	4	8
2017-2018	5	5
2018-2019	6	5
2019-2020	—	—
2020-2021	8	7
2021-2022	10	7

#### 5.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

We will continue to stress the importance of grantsmanship and provide faculty with the support and needed to be effective grant writers. Several new hires need more to adjust to the McNeese, and teaching environment requires more time to reach the benchmark. We will continue to strive for writing more grant proposals.

We will continue to stress the importance of grantsmanship and provide faculty with the support and needed to be effective grant writers.

2018-2019:

All the chemistry Ph.D. faculty got applied for Endowed fellowships and awarded. However, Dr. Bussan's BoR enhancement grant was denied. Since we got two new faculty and two more yet to come (Spring 2020), the number of grants applied and thereby changes of being awarded will increase.

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.

**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
2013-2014	5
2014-2015	5
2015-2016	9
2016-2017	—
2017-2018	—
2018-2019	—
2019-2020	—
2020-2021	—
2021-2022	5

**1.1.1 Analysis of Data and Plan for Continuous Improvement**

2017-2018:

2018-2019:

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 reestablishing the summer camps that Chemistry and Physics used to offer.

## 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

\*Hosted two high schools and visited seven others.

#### 2.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

2018-2019:

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.

## 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
2016-2017	3
2017-2018	—
2018-2019	—
2019-2020	—
2020-2021	1
2021-2022	2

#### 3.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

2018-2019:

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.