

Chemistry and Physics

Department of Chemistry and Physics

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 Ensure viable levels of student enrollment, retention, and completion appropriate to institutional resources and goals.

1 Assessment and Benchmark

Benchmark: Maintain the number of chemistry majors at or above 75.

1.1 Data

Semester	# of chemistry majors enrolled
Fall 2013	100
Spring 2014	87
Fall 2014	92
Spring 2015	81
Fall 2015	100
Spring 2016	82
Fall 2016	94
Spring 2017	78
Fall 2017	
Spring 2018	

1.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Since desired level is met, we will continue to work on attracting and keeping chemistry majors.

2017-2018:

2 Assessment and Benchmark

Benchmark: Maintain the number of program graduates at or above five.

2.1 Data

Academic Year	# of program graduates
2013-2014	12
2014-2015	9
2015-2016	10
2016-2017	19
2017-2018	

2.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Since desired level is met, we will continue to work on attracting and keeping chemistry majors.

2017-2018:

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	

3.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Since desired level is met, we will continue to work on attracting chemistry majors.

2017-2018:

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	

4.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Since desired level is met, we will continue to work on attracting and keeping chemistry majors.

2017-2018:

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	N/A	20
2014-2015	7	8	15
2015-2016	7	10	17
2016-2017			45
2017-2018			

5.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Since desired level is met, we will continue to work on attracting and keeping chemistry majors.

2017-2018:

6 Assessment and Benchmark

Benchmark: Maintain or exceed 2013-2014 levels of retention.

- CHEM - Chemistry
- ECCH - Environmental and Chemical Sciences

- MSCP - Mathematical Sciences
- SECP - Secondary Education and Teaching

6.1 Data

2013-2014:

Major	# of retained students	Retention rate
CHEM	38	42.70%
ECCH	5	83.33%
MSCP	1	33.33%

2014-2015:

Major	# of retained students	Retention rate
CHEM	48	56.47%
ECCH	10	71.43%
MSCP	2	40.00%
SECP	0	0.00%

2015-2016:

Major	# of retained students	Retention rate
CHEM	52	57.14%
ECCH	7	87.50%
SECP	1	100.00%

2016-2017:

Major	# of retained students	Retention rate
CHEM	39	50.58%
ECCH	8	88.89%
SECP	1	100.00%

6.1.1 Analysis of Data and Plan for Continuous Improvement

2017-2018:

7 Assessment and Benchmark

Major:

- CHEM - Bachelor of Science in Chemistry

7.1 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%	2	7.1%	0	0.0%
		Changed	4	14.3%	8	28.6%	11	39.3%	12	42.9%	5	17.9%	3	10.7%	0	0.0%
		Total	26	92.9%	23	82.1%	20	71.4%	17	60.7%	9	32.1%	5	17.9%	0	0.0%

*3 students were previously undeclared before declaring CHEM.

CHEM	Same															
	Changed															
	Total															

2019:

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		Same														
		Changed														
		Total														

7.1.1 Analysis of Data and Plan for Continuous Improvement

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

Curricular innovation/modification:

2015-2016:

The new BS concentration in Chemistry and Management was activated with Dr. Omar Christian as Adviser. We initiated discussions on introducing Polymer chemistry into the curricula for ACS-certified majors.

We implemented an oral examination for all graduate students in the semester prior to their thesis defense. This was the first year it was held.

2016-2017:

The new BS concentration in Pharmacy has been initiated. This concentration provides a pathway for students who wish to join the pharmacy program and graduate with a chemistry degree.

2017-2018:

1.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

The previous department head departed in 2015. Since desired level is met, we will continue to work on germane curricular matters.

2017-2018:

2 Assessment and Benchmark

Benchmark: Probe stakeholders regarding the adequacy of student preparation.

2.1 Data

2016-2017:

Graduates employed in industry and who are current students in graduate or professional schools are unofficially asked about the adequacy of their undergraduate preparation.

2017-2018:

2.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Anecdotal evidence strongly suggests that our students compete very effectively in industry, graduate and professional schools.

2017-2018:

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

2016-2017:

Two meetings were held regarding ACS approval.

2017-2018:

1.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

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

2017-2018:

2 Assessment and Benchmark

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

2.1 Data

2016-2017:

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

2017-2018:

2.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

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

2017-2018:

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 SEI's above 70%.

1.1 Data

Academic Year	Faculty meeting SEI goal	
	%	#
2013-2014	100%	
2014-2015	100%	

2015-2016	100%	
2016-2017		
2017-2018		

1.1.1 Analysis of Data and Plan for Continuous Improvement

2015-2016:

Since the goal is met, we will continue to stress the importance of excellence in teaching and provide faculty and students with the means to succeed in the classroom. In the 2016-2017 Academic Year, the benchmark will be changed to: 2/3 of faculty will have SEI's above 70% and 1/3 of faculty will have SEI's above 80%.

2016-2017:

2017-2018:

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%

1.1.1 Analysis of Data and Plan for Continuous Improvement

2015-2016:

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.

2016-2017:

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.

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.

2 Assessment and Benchmark

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

2.1 Data

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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%

2.1.1 Analysis of Data and Plan for Continuous Improvement

2015-2016:

We will continue to make research opportunities available. In the future, we will track the number of students.

2016-2017:

We will continue to make research opportunities available.

2017-2018:

We will continue to make research opportunities available.

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

3.1.1 Analysis of Data and Plan for Continuous Improvement

2015-2016:

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

2016-2017:

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

2017-2018:

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

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	
2014-2015	3/8	
2015-2016	2/8*	
2016-2017	3/7	
2017-2018	5/7	

*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

2015-2016:

We will continue to support faculty excellence in research and to assist in research dissemination through oral and poster presentations at scientific meetings. Although this benchmark was not met it was an aberration.

2016-2017:

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

2017-2018:

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

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

5.1.1 Analysis of Data and Plan for Continuous Improvement

2015-2016:

We will continue to stress the importance of grantsmanship and provide faculty with the support and needed to be effective grant writers. In the 2016-2017 Academic Year, we will increase the benchmark to 7 grants.

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

2016-2017:

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.

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.

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	

1.1.1 Analysis of Data and Plan for Continuous Improvement

2015-2016:

We will continue to seek out and take advantage of such opportunities. In the future we will increase the benchmark to five community activities.

2016-2017:

2017-2018:

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	

*Hosted two high schools and visited seven others.

2.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

We will continue to seek out and take advantage of such opportunities. The individual in charge of this outreach is retiring. As a result, this will be put on hold.

2016-2017:

2017-2018:

3 Assessment and Benchmark

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

3.1 Data

2016-2017:

We have the Sasol Undergraduate Fellowship, the SWLCL Internship, as well as a Sasol-sponsored research project led by Dr. Douvris.

2017-2018:

3.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

We will continue to seek out and take advantage of such opportunities.

2017-2018: