

Program Review Summary Report**Prepared by the Office of Academic Planning and Assessment****Degree Program Reviewed:** Chemistry**Academic Semester Initiated:** Fall, 2015**Concentrations/Minors within the Degree Program:** Minors: Environmental Science, Forensic Science, Chemistry**Persons/Person Submitting the Program's Response:** Not provided. Review was submitted by Ibrahim Katampe.I. Review Team Comments and Recommendations to the Ad Hoc Program Review Committee**Review Team Members:** Rajeev Swami (COE/PE), Abiodun Fasoro, Rebecca Ertel (CHAS/Eng/OAPA)**Review Team Rating and Score:** Low performing 40/72**Review Team Comments and Recommendations:**

The Chemistry program's performance on the review matrix is at the low performing level. Its rubric score is 40/72.

The Natural Sciences Department mission is aligned with the University mission. However, the Chemistry Program does not present a formal program mission and does not fully articulate how it has integrated the goals of the strategic plan and the University's tenets. The program is advised to develop a mission statement in line with the University's mission, tenets, and strategic plan.

In the absence of a formal mission, true assessment of the alignment of the faculty work with the mission is not possible; however, based on the department's response, the work of the faculty in developing an effective curriculum is evident, but the response does not adequately address the roles of faculty service and research.

The data suggest the program's performance in terms of retention and graduation rate mirror those of its college. The program's course completion rate is 74.8%, slightly above the college average. The program presents little evidence of tracking or planning for enrollment.

The program sponsors the Chemistry Club but presents little evidence of the effect of participation on student achievement. The program's response does not discuss advising. The program is encouraged to begin tracking advising and the impact of extra-curricular activities, regardless of sponsor, on its students' success.

The program presents a curriculum map and evidence that the curriculum is current. However, the map is difficult to interpret and does not appear to indicate when LO's are assessed or in which courses they reside. The program is encouraged to develop a more readable and comprehensive curriculum map. The program has made some attempt at assessment planning, but does not present an assessment plan and is encouraged to develop one. Similarly, the program has identified learning outcomes, but does not clearly address institutional outcomes and some outcomes are not measurable as stated. The program is encouraged to revise its LO's to ensure each is clear and measurable.

The program's accrediting body is the American Chemical Society. The program presents evidence that it meets most, but not all ACS standards and outlines its deficiencies and needs.

The program's response to several items was incomplete or did not address the item directly. The program is advised to more specifically address the items in the rubric in future reviews.

II. Scored Rubric

Central State University Program Review Rubric

Rubric Category	Exemplary (4)	Acceptable (3)	Emerging (2)	Initial (1)	SCORE	Comments
IDENTITY AND MANAGEMENT						
1. Alignment of Program Mission	The program has a clearly defined mission that is fully aligned with the department, college, and University missions. The University's compelling priorities, tenets, and many of the goals and the objectives of the strategic plan are clearly integrated into the program.	The program has a clearly defined mission that is aligned with the department, college, and University missions. The University's compelling priorities, tenets, and some of the goals and the objectives of the strategic plan are integrated into the program.	The program has a mission that is partially aligned with the department, college, and University missions. The University's compelling priorities, tenets and objectives of the strategic plan are not clearly integrated in the program.	The program has no defined mission or a mission that is vaguely articulated or not aligned with the department, college, and University missions or it has not meaningfully integrated the compelling priorities, tenets, or strategic objectives into its mission.	3	The department mission is aligned with the University mission. However, the program does present a formal program mission and does not fully articulate how it has integrated the goals of the strategic plan and the University's tenets. The relationship between the University's strategic plan and tenets and the Chm program needs to be made more explicit.
2. Alignment of Faculty Work with Program Mission	Faculty productivity (teaching, research, and service) is significant and appropriate to the program's mission.	Faculty productivity (teaching, research, and service) is adequate and appropriate to the program's mission.	Teaching, research, and service activities of program faculty are low or inappropriate to the program's mission.	Teaching, research, and service activities of program faculty are low and inappropriate to the program's mission.	3	The work of the faculty in developing a supportive curriculum and providing a nurturing and effective learning environment is evident, but the response does not adequately address faculty research or service. These are address to some degree in responses to other questions.
3. Enrollment trends	The number of majors and/or average enrollment in the program's courses is trending upward and is above that of other programs in the college.	The number of majors and/or average enrollment in the program's courses is trending upward or is steady and is near or above that of other programs in the college.	The number of majors and/or enrollment in the program's courses is trending downward or below that of other programs in the college.	The number of majors in the program ranks in the lower third of those in the college or average enrollment in the program's courses is trending below	3	While the program's response does not completely address the rubric, the data show that the program's enrollment has been uneven, declining in three of the last six years

				that of other programs in the college.		and in both of the most recent years. These data mirror that of the University. Among the 10 CSE program's, Chemistry ranks 5 th in average number of majors during the most recent five years.
4. Most Recent Graduation Rate	Program graduation rate above college average.	Program graduation rate at or no more than 5% below college average.	Program graduation rate 6-10% below college average.	Program graduation rate more than 10% below college average.	4	Is tied for third in total number of graduates in CSE, and at 21, is above the college average number of grads (17.7) during the most recent five year period.
5. Avg. Course Completion in Discipline	Course completion rate above college average.	Course completion rate at or no more than 5% below college average.	Course completion rate 6-10% below college average.	Course completion rate more than 10% below college average.	4	The program did not address the item, but the data show that Chm has an avg. course completion rate of 74.8, slightly above the CSE average of 72.4. The program is advised to provide appropriate responses to all items.
6. Enrollment Management	The program tracks its enrollment trends, has functioning plan and ongoing activities for managing enrollment in its program, and has met or exceeded its enrollment goals.	The program tracks its enrollment trends, has a viable plan for managing enrollment in its program, and is progressing toward meeting its enrollment goals.	The program tracks its enrollment trends and has plan for achieving optimum enrollment, but has made little or no progress toward achieving the goals of the plan.	The program does not track its enrollment trends or has no acceptable plan for managing enrollment in its program.	1	While the response includes some strategies for increasing enrollment, there is no real plan or evidence of tracking.
7. Relevance and currency (curricular updates, graduate placement, employment prospects)	Program has many innovative curricular updates; consults with employers, graduate schools, and other relevant outside stakeholders; and provides data showing excellent graduate placement (graduate school and employment) and, if applicable, licensure exam pass rates.	Program has many curricular updates, provides some evidence of consultation with outside stakeholders, and provides data showing acceptable graduate placement (graduate school and employment) and, if applicable, licensure exam pass rates.	Program has had some curricular updates, but does not provide evidence of consultation with outside stakeholders or does not provide data supporting acceptable graduate placement (graduate school and employment) and/or licensure exam pass rates.	Program has not been updated in past 5 years, does not provide evidence of consultation with outside stakeholders, does not have placement data, failed to place graduates at acceptable rates, or graduates do not pass licensure exams at acceptable rates.	2	The response does not address the item. However, the program's response to other questions includes some information about student success and efforts to make sure the curriculum is up-to-date.

8. Support for Extra-curricular Activities	The program sponsors appropriate extracurricular activities, tracks its students' involvement in extra-curricular activities within and outside of the program, and provides appropriate advising to ensure participation supports academic success.	The program sponsors appropriate extracurricular activities, tracks its students' involvement in extracurricular activities within and outside of the program, and provides advising to ensure participation supports academic success.	The program sponsors appropriate extracurricular activities but does not adequately track student participation or does not provide evidence demonstrating effective advising to ensure participation supports academic success.	The program does not sponsor appropriate extracurricular activities and/or does not track student participation in departmental or other extra-curricular activities.	2	The program sponsors the Chemistry Club, which appears to be active among the majors, although no membership figure was provided. The BBSP data were tracked and showed the program had a positive impact on students; however, the response does not identify the EC activities associated with BBSP or specifically discuss the impact of those activities. The response does not address ec activities outside those sponsored by the program. The response includes no discussion of advising.
ASSESSMENT						
9. Learning Outcomes	The program outcomes are appropriate and comprehensive. Relevant institution-wide learning outcomes are included. The program outcomes describe how students can demonstrate their learning. Faculty have agreed on explicit criteria statements, such as rubrics, and have identified examples of student performance at varying levels for each outcome.	The program has reasonable outcomes that focus on the key knowledge, skills, and values students learn in the program. It includes relevant institution-wide outcomes (e.g., communication or critical thinking skills). Outcomes are appropriate for the level. Nearly all outcomes describe how students can demonstrate learning. E.g., "Students can write reports in APA style" or "Students can make original contributions to biological knowledge." Faculty have agreed on criteria for assessment.	The program has reasonable outcomes that focus on the key knowledge, skills, and values students learn in the program. It includes relevant institution-wide outcomes (e.g., communication or critical thinking skills). Outcomes are mostly appropriate for the level. Most outcomes describe how students can demonstrate learning. E.g., "Students can write reports in APA style" or "Students can make original contributions to biological knowledge."	The program may not have explicitly stated outcomes or the outcomes are very incomplete, overly detailed or broad, inappropriate, or otherwise problematic. The outcomes may confuse learning processes (e.g., prepares a portfolio) with learning outcomes (e.g., writes an effective application letter). Outcomes may not identify how students demonstrate learning. I.e., Statements such as "Students understand scientific method."	2	The program needs to make the relationship between the major program and institutional learning outcomes more clear.

10. Curricular Design and Coherence	The curriculum provides opportunities for students to learn and to develop increasing sophistication with respect to each outcome. This design is summarized in a curriculum map which shows in which courses outcomes are introduced, practiced/reinforced, mastered, and assessed.	The curriculum provides opportunities for students to learn and to develop increasing sophistication with respect to each outcome. This design is summarized in a curriculum map which shows in which courses outcomes are present and assessed.	Students are given reasonable opportunities to develop the expected knowledge/skills/attitudes of the outcomes in the required curriculum. The curriculum is summarized in a curriculum map.	There is no clear relationship demonstrated between the outcomes and the curriculum. The program does not provide a curriculum map.	2	The program presents a curriculum map, but color-coded with no legend, so it is difficult to make sense of, but states the curriculum is standard, so one can assume coherence on that basis. The map does not appear to indicate when LO's are assessed or in which courses they reside. The program is advised to improve the readability and comprehensiveness of its curriculum map.
11. Assessment Planning and Revision	The program has a well-articulated, sustainable assessment plan that describes when and how each program outcome will be assessed and how improvements based on findings will be implemented. The program has collected, analyzed, and used assessment data for improvement.	The program has a well-articulated, sustainable assessment plan that describes when and how each program outcome will be assessed and how improvements will be implemented. The program is collecting assessment data and is on course for completion of a full assessment cycle within the academic year.	The program assesses its course learning outcomes but may have only a rudimentary assessment plan or select which outcome(s) or course(s) to assess on an ad hoc basis. The program may describe how improvements will be implemented, but has not yet used assessment data for program improvement.	The program does not adequately demonstrate that it systematically gathers, analyzes, and uses assessment data to inform curricular change and improvement.	2	The program describes some attempt at assessment planning, but has not developed an assessment plan.
12. Compliance with External Standards	The program provides satisfactory evidence that it meets or exceeds recognized professional standards in the discipline.	The degree program provides evidence that it meets most national standards , an explanation for areas of non-compliance, and a plan for addressing weaknesses.	The degree program provides evidence that it meets most national standards, but may lack an articulated strategy for bringing the program into compliance.	The degree program does not provide sufficient evidence that it meets most national standards and/or an adequate explanation for areas of non-compliance, and/or a reasonable plan for addressing weaknesses.	3	The program's response is outdated. However, the program has now received feedback from ACS indicating it meets most but not all ACS standards and is developing a plan to address areas needed improvement.
STABILITY AND DEVELOPMENT						
13. Program Faculty	The program has the appropriate number of qualified faculty to perform its teaching, research, and service	The program has an adequate number of qualified faculty. Course enrollments do	The program does not have an appropriate number and/or mix of appropriately credentialed faculty to support its teaching,	The program does not have an appropriate number of qualified faculty. Class	1	The program's response provides no information beyond a list of faculty.

	<p>functions. Courses are offered regularly and according to the catalog, course enrollments do not reveal consistent under or over enrollment, and the number of sections available are adequate for University needs each semester. No more than one-third of the program's sections are taught by adjuncts and the program presents evidence that it maintains high quality student advising and support.</p>	<p>not reveal consistent under or over-enrollment. Some faculty lines may be unfilled, but course offerings are maintained and the number of sections available is usually adequate for university needs. Fewer than 40% of the program's sections are taught by adjuncts and the program presents evidence showing the number of full-time faculty is sufficient to provide appropriate student advising and support.</p>	<p>research and service functions. Courses may not be offered according to the catalog or may be taught by faculty with only minimum qualifications. Classes are frequently under or over-enrolled or not offered. More than 40% of the program's sections were taught by adjuncts. The program provides only minimally adequate student advising.</p>	<p>enrollments reveal consistent under or over-enrollment, classes are not offered due to lack of faculty, or the number of sections available is often inadequate for University needs. Fifty percent or more of the program's sections are taught by adjuncts and the program presents little or no evidence of adequate student advising.</p>		
14. Non-faculty resources	<p>A statement of non-faculty personnel and resource needs for the next 5 years are identified, well-supported by evidence, and demonstrates consideration of field changes and university needs. Funding needs are documented, realistic, and competitive.</p>	<p>A statement of non-faculty personnel and resource needs for the next 3-5 years is present and is supported by evidence and demonstrates consideration of field changes and University needs. Salary/cost estimates are present.</p>	<p>A statement of non-faculty personnel and resource needs for the next 3-5 years is present but may not be adequately supported or demonstrate consideration of field changes and University needs. Salary estimates are included but may not be documented.</p>	<p>A statement of non-faculty personnel and resource needs for the next 3-5 years may not be present, may not be supported by evidence, or may not demonstrate consideration of field changes and university needs. Salary estimates may be missing.</p>	2	<p>The program's response is incomplete. It addresses some of the non-faculty resources needs pointed out by the ACS review, but not all.</p>
15. Faculty Development and Program Excellence	<p>Program has many examples of faculty excellence in teaching, research, and service. Program faculty actively engage in professional development, research, and service as evidenced by publications, presentations, and other professional activities. Adjunct faculty are trained and well-supported.</p>	<p>Program has several examples of faculty excellence in teaching, research, and service. Program faculty engage in professional development, research, and service as evidenced by publications, presentations, and other professional activities. Adjunct faculty are trained and supported.</p>	<p>Program provides some examples of faculty excellence in teaching, research, or service. Program faculty participate in some professional development activities. Some evidence of faculty presentations, publication, or other professional activity is provided. Program provides little evidence of training or support for adjuncts.</p>	<p>Program provides no or few examples of faculty excellence. Program faculty are sometimes absent from required University-sponsored professional development activities, including department, college, and University Senate.</p>	1	<p>The program's response does not address the rubric.</p>

16. Cost to Degree	The program cost to degree is near or below the state average and the program is engaged in reducing costs.	The program cost to degree is slightly above the state average and the program is engaged in reducing costs.	The program cost to degree is significantly above the state average and the program is engaged in reducing costs.	The program cost to degree is significantly above the state average and the program provides no evidence of efforts to reduce costs.	1	The program presents no analysis and no plan to address cost or intent to develop one.
17. SWOT Analysis	The Program uses an evidence-based approach to identify strengths and weaknesses and has collectively developed and implemented ongoing strategies for enhancing areas of strengths and addressing weaknesses.	The Program uses an evidence-based approach to identify strengths and weaknesses and has developed strategies for enhancing areas of strength and addressing weaknesses.	The Program identified strengths and weaknesses but supplies little evidence to support its conclusions or has not developed strategies for enhancing areas of strength and addressing weaknesses.	The Program has not identified strengths and weaknesses or supplies no evidence to support its conclusions or has not developed strategies for enhancing areas of strength and addressing weaknesses.	2	The program identified strengths and weaknesses but supplies little evidence to support its conclusions and has not developed strategies for enhancing areas of strength and addressing weaknesses.
18. Goals and Objectives	The program has a complete strategic plan with at least three specific objectives to enhance quality and efficiency. Evidence is provided to support the viability and implementation of these objectives.	The program has at least three specific objectives to enhance quality and efficiency. Evidence is provided to support the viability and implementation of these objectives.	The program has fewer than three specific objectives to enhance quality and efficiency or does not provide adequate evidence supporting the viability and implementation of its objectives.	The program has no specific objectives to achieve and enhance quality and efficiency or does not provide adequate evidence supporting the viability and implementation of its objectives.	2	The program has at least three specific objectives to enhance quality and efficiency, but does not provide adequate evidence supporting the viability and implementation of its objectives.
Total Score					40	

III. Ad Hoc Program Review Committee Recommendations to the Provost

Ad Hoc Program Review Committee Comments:

Recommendations for the Chemistry program are as follows. These recommendations should be included in an interim report due at the end of the upcoming 2017 academic year:

1. Develop a mission statement that is aligned to the University mission and tenets;
2. Align program-level outcomes to the CSU institutional outcomes and/or Compelling Priorities;
3. Improve curriculum mapping and make map more easily understood by others who are not in the discipline;
4. Report on the impact of extracurricular activities and how they impact student success.

Recommended Actions:

Submit interim progress report(s) on one or more items on the worksheet

IV. Provost's Review and Required ActionsIV. Provost's Review and Required Actions

Provost's Comments: I have reviewed the analysis of the Chemistry degree and the challenges that it faces. There are a number of curricular and outcome issues that can be resolved by addressing the recommendations in the submitted report. I recommend that the following issues be addressed by the Dean and the chair of the department: Major Issue I- **Alignment of Program Mission**- The program has no defined mission or a mission that is vaguely articulated or not aligned with the department, college, and University missions or it has not meaningfully integrated the compelling priorities, tenets, or strategic objectives into its mission.

Recommendation-define the mission of the program consistent with the compelling imperatives stated in the University Strategic Plan. Review for consistency the connection of the mission and the Land-Grant Mission. Are there any courses that need to be revised to reflect this new identity.

Major Issue II-Continue to review the Central State University compelling priorities,
Re commendation- Dean, chair and faculty members in the Chemistry Department should spend a retreat day to review the compelling priorities and align them with the learning outcomes of the program. These should be provided in a program matrix and include the course learning outcomes as part of the student trajectory as majors in the program.

Major issues III-Academic quality of the program, student learning outcomes and co-curricular activities need to be clearly articulated. This gives the impression that the most important issues related to academic quality have not been addressed. The academic rigor of the program should depend on the standards that have been outlined by the American Chemical Society, The course mapping should reflect both the standards by the ACS and Central Sate's compelling priorities and how they are infused in each of the core courses.

Recommendation- Chair Dean and faculty members must work on a subsequent document to be completed no later than May of 2017 for further consideration of program viability. The report must include and address all the **weaknesses** that have been identified in the above criteria document. In addition, the department must also outline a plan for student recruitment and identification of students interested in this major. Review the understanding of the faculty member in reference to learning outcomes and assessment. Provide the faculty member with the opportunity to attend via various means, workshops to address the weaknesses related to student learning outcomes.

Final Program Rating and Score: Final score based on this rubric is 2.0

Required Actions and Due Date(s): May 2017

Reviewed by Dr. Pedro L. Martinez January 8, 2017

Pedro L. Martinez

Signature of the Provost and Vice President of Academic Affairs

1/08/2017

Date

Please return the report to the Office of Academic Planning and Assessment for filing and distribution to the Chair of the Ad Hoc Committee on Program Review, the dean of the program's college, and the chair of the program's department.

Office of Academic Planning Office Use

Date of Report to the Senate: