

PROGRAM REVIEW UPDATE 2016-2017

Program:

Division:

Date:

Writer(s):

SLO/SAO Point-Person:

Audience: Deans, Vice Presidents of Student Services and Academic Services, All Planning and Allocation Committees. This document will be available to the public.

Purpose: To document significant program accomplishments, plans and needs between Triennial Program Reviews. This update should provide a snapshot of your program.

Uses: This update will be used to inform the campus and community about your program. It will also be used in the processes of creating Dean's Summaries, determining College Planning Priorities and allocating resources.

Time Frame: This update should reflect on program status during the 2015-16 academic year. It should describe plans starting now and continuing through 2017-18.

Topics: The first section of this Program Review Update focuses on general program reflection and planning. The second, third and fourth sections focus on reflection and planning regarding Student Learning Outcomes. Only instructional programs need to complete Sections 2, 3, and 4.

Scope: While this Program Review Update does ask for some analysis of data, detailed data reports in the form of appendices should be reserved for the Triennial Program Review.

Instructions:

- 1) Please fill in the following information as completely as possible.
 - 2) If the requested information does not apply to your program, please write "Not Applicable."
 - 3) Optional: Meet with your dean to review this document before October 10, 2016.
 - 4) Send an electronic copy of this form to the Program Review Committee Chair and your Dean by October 10, 2016.
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Part One: Program Snapshot

A. Have there been any significant changes to your program, your program's data or your program's needs since the previous Program Planning Update?

If there are any changes, describe the relevant information and its significance in the space below.

These changes might have originated from within the program or because of an external source (the institution or the state, for example). Possible sources of relevant information might include, but are not limited to, the following:

- Data generated by your program
- Data from the Office of Institutional Research (<http://goo.gl/Ssfik2>)
- CEMC Data
- Retirements
- State Mandates
- Labor Market Data
- SLO/SAO Data

- Our total FTEF allocation went from 15.63 FTEF in 2015 – 2105 to 17.11 FTEF in 2016 – 2017. This is a 9.5% growth in FTEF for a single year. This includes adding back the evening section of Chemistry 1B in the most recent round of FTEF growth allocations. Additional FTEF also

went into adding one section of 1A in summer 2016 and one section of 1B in the Fall 2016 to meet demands in these highly impacted courses. The daytime double section of 30A in the summer 2016, however, was eliminated (due to low enrollments and lack of faculty to teach it) and became a single evening section which filled up right away.

- We reviewed the data from the OIR and noticed no glaring changes to our course success and retention data and demographics compared to last year's data.
- The ACS California Chemistry Diagnostic Exam used as the assessment exam for students entering Chemistry 1A is currently undergoing a validation review which started last fall. Both faculty and students responded to surveys in Fall 2015 and Spring 2016. More student surveys will be administered this fall.

B. What objectives, initiatives, or plans from the 2015 Program Review Update have been achieved and how?

UPDATES on last year's objectives and plans:

- Shirley Ly was hired as the new evening lab technician to replace Brandon Butler who departed for Pharmacy School at UOP.
- Chemistry's proposal for a new full time faculty position ranked 20th in the prioritization process in the 2015-2016 cycle. The budget allowed for hiring 14 faculty. We have updated our proposal to resubmit for the 2016-17 cycle.
- We sent our ADT proposal to Curriculum Chair Craig Kutil to verify our unit counts. We all came to the conclusion that we cannot meet the 60-unit maximum requirement for students to fulfill the courses required in the transfer model curriculum.
- We are continuing to work on bringing Part-time faculty into the SLO process. There will be workshops for part-time faculty to learn how to use the new eLumen. This semester, full-time faculty are helping some part-time faculty on a one-on-one basis to enter their data and reflections in eLumen.

C. Discuss at least one example of how students have been impacted by the work of your program since the last program review update (if you did not already answer this in Question B).

- We offered more sections of 1A and 1B to meet the demand for these majors courses.
- The new polarimeter instrument was successfully used by students conducting an Honors Project and in the Chemistry 12A lab.
- To accommodate the 2 new lab sections of 1A and 1B, lab support staff worked hard on making more lockers available to students to minimize sharing of lockers.
- The new solar cell lab developed by Mike Ansell has now been implemented across all Chemistry 1B sections. We continue to incorporate green chemistry concepts throughout the curriculum.
- We continued to advise student clubs and encourage and support student participation in internships, seminars and conferences, and honors projects and reward student excellence through ASLPC – sponsored Chemistry Scholarships.
- We have continued to work with Anatomy instructors to inform pre-nursing students about the advantages of taking Chemistry 30B (Organic and Biochemistry) as preparation for their major, even though it is no longer a required class in many nursing programs.

D. What obstacles has your program faced in achieving objectives, initiatives, or plans?

We have not been able to systematically work with adjunct faculty last year on SLO's as we had planned to due to uncertainties about how the SLO-related contract language is to be implemented. ***Scheduling meetings for discussion as a department including part-time faculty continues to be a challenge.*** We will keep working on this year. This semester, full-time faculty are helping some part-time faculty on a one-on-one basis to enter their data and reflections in eLumen.

The program has grown considerably; it now offers 41 sections. This growth requires increasing lab facilities, equipment, glassware, lab support, and supplies and we may need funding for unexpected equipment failures. Specifically, we will be requesting a Lead (Pb) Lumina Hollow Cathode Lamp, Diameter: 50mm (2in.) and a new set of Vernier Radiation Detectors through the Fall 2016 EIR process. In particular, the General Chemistry lab room 1802 has reached its maximum capacity of lab sections per semester. Currently, 6 sections, twice a week, are held in this lab. Two of these sections are forced to share lockers and equipment which is not ideal. This limits our ability to increase the number of sections of the General Chemistry series required for all STEM majors. The Chemistry Program will need two additional laboratory classrooms over the next decade in order to accommodate any additional growth and will likely need significant renovations of the existing laboratories as the safety, flooring, and ventilation systems in Building 1800 reach the end of their life span.

Despite additional sections, there are still long waiting lists for almost all of our courses. In particular, there was quite a demand for the 12A/B series both last year and this year. This is not surprising as there are more sections of the feeder courses, 1A and 1B. We plan to request a third section of the 12A/B series for Fall 2017.

It would be ideal if there is more lab technician support to fully utilize the instruments. This involves helping instructors assist students during the use of the instrument in labs. More lab support can also be used to help in the maintenance and in developing and testing new labs. We are looking into requesting a 10-month half-time lab tech position in the Fall of 2017.

We are resubmitting our request to hire a fourth full-time faculty. The Chemistry Program provides curriculum that supports other science courses and many degrees and certificates. Another full-time faculty who can help with updating course curriculum, developing new lab curriculum utilizing all our instruments, and maintaining the instruments will help the Program provide students with a robust course curriculum and offerings using state-of-the-art and research grade instrumentation. This is particularly critical at this time as we have experienced difficulty finding part-timers to teach our courses, especially when one of the three full-time faculty goes on leave. Since 2006 when the Program grew to three full-time faculty, the number of sections offered has grown from 27 to 41, a 50% increase.

LPC has approved the transition from Blackboard to Canvas. All of our chemistry instructors and the lab support staff use blackboard. This is in addition to faculty having to learn to use the new-eLumen. Additional Instructional Technology personnel will be needed to help train both faculty and staff.

E. What are your most important plans (either new or continuing) for next year?

Our most important plans address the challenges and obstacles listed above:

- 1) Find a sustainable way for part-time faculty to be involved in the discussion without impacting their already tight schedules.
- 2) Resubmit the request to hire a fourth faculty, if not funded in 2017..

- 3) Request FTEF and equipment for a third organic chemistry section in Fall 2017.
- 4) Continue to maintain a pool of potential part-time faculty.
- 5) Continue to request increase in equipment (including glassware and other locker materials) and chemical supplies budget.
- 6) Request a half-time, 10-month lab tech position.
- 7) Plan to request a fourth lab room and more science building classrooms so that we can offer more sections to meet student needs for timely completion of transfer courses.

F. Instructional Programs: Detail your department's plans, if any, for adding DE courses, degrees, and/or certificates. For new DE degrees and/or certificates (those offered completely online), please include a brief rationale as to why the degree/certificate will be offered online.

N/A

G. Do plans listed under Question E or Question F connect to this year's planning priorities (listed below)? If so, explain how they connect.

Planning Priorities for 2016-17 [May be updated]

1. ***Establish regular and ongoing processes to implement best practices to meet ACCJC standards***
2. ***Provide necessary institutional support for curriculum development and maintenance***
3. ***Develop processes to facilitate ongoing meaningful assessment of SLOs and integrate assessment of SLOs into college processes***
4. ***Expand tutoring services to meet demand and support student success in Basic Skills, CTE and Transfer courses.***

Toward Priorities 1 and 3: Plan 1 above

Toward Priority 2: Plans 1 to 7 above.

H. Instructional programs: Did your program meet its program-set standard for successful course completion? yes no

(This data can be found here: [link to be added August 2016])

If your program did not meet your program-set standard, discuss possible reasons and how this may affect program planning or resource requests.

N/A

I. Units with SAOs: Using SAO data from last year, describe the impacts of SAO practices on student learning, achievement, or institutional effectiveness. Describe the practices which led to the success. (Copy the box below if you would like to discuss multiple examples).

SAO:
Describe the quantitative or qualitative results:
Discuss any actions taken so far (and results, if known):
Discuss your action plan for the future:

**Part Two: Course-Level SLO Assessment Schedule
(Instructional Programs Only)**

**Part Three: Assessment Results
(Instructional Programs Only)**

1. Describe an example of how your program used **course SLO data (SLOs)** from last year (2015-16) to impact student learning or achievement. (Copy the box below if you would like to discuss multiple examples).

Course: Chemistry 1A
Course SLO: Students completing Chemistry 1A should be able to demonstrate proficiency in solving complex problems and conceptual understanding of content listed in the course outline as measured by the American Chemical Society General College Chemistry First Term Exam.
Describe the quantitative or qualitative results: Overall, students completing my 1A meet the satisfactory achievement of a score distribution similar to that of the national distribution (half scoring at the 50 percentile based on national norms). However, I did notice that my class scores have decreased, albeit there have only been three data points so far.
Discuss any actions taken so far (and results, if known):
Discuss your action plan for the future: I plan to review midterm exam results with students in more detail than I have in the past. I also plan to analyze what particular sections of the exam are the most challenging to students based on number of incorrect answers. I will then place more emphasis on these topics. I also will be talking to the part-time instructors who have taught Chem 1A more frequently to get ideas on improving assessment scores.

Course: Chemistry 12A
Course SLO: Students completing 12B should be able to demonstrate proficiency in solving complex problems and conceptual understanding of content listed in the course outline as measured by the American Chemical Society Organic Chemistry series exam.
Describe the quantitative or qualitative results: In 2015, the class average was 56.4 percentile with a STDev of 28. The national average is the 50 th percentile, so anything above the national average is desirable. This is an excellent result, but I noticed that there was a large gap between the top students in the class and the bottom students in the class. In 2015-16, I focused more on review, support, and confidence building for the students who were struggling. In 2016, the class average was 61.8 with a STDev of 25. The top students really worked to help the struggling students succeed and the class average was 61.8 percentile. I believe this is the highest class average we have ever had.
Discuss any actions taken so far (and results, if known): see above
Discuss your action plan for the future: I will continue to provide more review, support and individual attention to the students struggling in the course.

Course:
Course SLO:
Describe the quantitative or qualitative results:
Discuss any actions taken so far (and results, if known):
Discuss your action plan for the future:

2. Degree/Certificate granting programs only: Describe an example of how your program used **program-level SLO data (PSLOs)** from last year (2015-16) to impact student learning or achievement. (Copy the box below if you would like to discuss multiple examples).

Degree/Certificate: Chemistry AS and Chemistry Education AA
<p>Program SLO:</p> <ol style="list-style-type: none"> 1. Students completing this degree should be able to demonstrate proficiency in solving complex problems in and conceptual understanding of General Chemistry as measured by the ACS Full-Year General Chemistry Exam. 2. Students completing this degree should be able to demonstrate proficiency in solving complex problems in and conceptual understanding of Organic Chemistry as measured by the ACS Full-Year Organic Chemistry Exam.
<p>Describe the quantitative or qualitative results:</p> <p>2014 – 2015: The data below show a satisfactory achievement outcome of 50% or more achieving a score of 3 and above in the assessment exams (at or above the 50 percentile according to national norms).</p>

Competency Description	A	B	C	D	E	# Total Scores
Chemistry - AS Transfer Prep						
Any student completing this degree should have a basic understanding of organic chemistry as measured by the standardized Organic Chemistry test from the American Chemical Society.						
Spring 2015	10 (48%)	2 (10%)	5 (24%)	4 (19%)		21
Any student getting this degree should have a basic understanding of general chemistry as measured by the standardized General Chemistry test from the American Chemical Society.						
Spring 2015	3 (14%)	9 (41%)	5 (23%)	5 (23%)		22
Fall 2014	4 (10%)	18 (43%)	16 (38%)	4 (10%)		42
Totals:	7 (11%)	27 (42%)	21 (33%)	9 (14%)		64
Report Totals by Term						
Spring 2015	13 (30%)	11 (26%)	10 (23%)	9 (21%)		43
Fall 2014	4 (10%)	18 (43%)	16 (38%)	4 (10%)		42
Grand Totals:	17 (20%)	29 (34%)	26 (31%)	13 (15%)		85

Competency Description	A	B	C	D	E	# Total Scores
Chemistry Education - AA						
Any student completing this degree should have a basic understanding of organic chemistry as measured by the standardized Organic Chemistry test from the American Chemical Society.						
Spring 2015	10 (48%)	2 (10%)	5 (24%)	4 (19%)		21
Any student getting this degree should have a basic understanding of general chemistry as measured by the standardized General Chemistry test from the American Chemical Society.						
Spring 2015	3 (14%)	9 (41%)	5 (23%)	5 (23%)		22
Fall 2014	4 (10%)	18 (43%)	16 (38%)	4 (10%)		42
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Discuss any actions taken so far (and results, if known): [None necessary as expected outcomes have been achieved.](#)

Discuss your action plan for the future:
[We are exploring the idea of adding course SLO's and a program SLO that measure proficiency in laboratory skills.](#)

Part Four: Program Curriculum Map (Instructional Programs with Degrees/Certificates Only)

Background: Program-level Student Learning Outcomes

Program-level Student Learning Outcomes (PSLOs) are defined as the knowledge, skills, abilities, or attitudes that students have at the completion of a degree or certificate. Faculty within a discipline should meet to discuss the expected learning outcomes for students who complete a particular series of courses, such as those required for a certificate or a degree. PSLOs should be the big things you want students to get out of a degree or certificate. PSLOs should be developed throughout the program and in multiple courses. Discussions might also involve colleagues in other programs regarding prerequisites and transfer courses or community stakeholders regarding job expectations.

It is recommended that each program have 3-6 PSLOs. Discipline faculty members might need to have a more comprehensive list based on the requirements of external stakeholders (employers, state requirements, etc.). For most programs, PSLOs are only assessed through linked course-level SLOs. You might assess PSLOs in a capstone project or capstone course that many students complete when earning a certificate or degree. Alternatively, you could assess development of a set of skills as students advance through different courses in your program (ENG 1A -> ENG 4 or 7).

Program-level outcomes should

1. **describe** what students are able to do after completing a degree or certificate;
2. be **limited** in number (3-6 outcomes);
3. be **clear** so that students and colleagues can understand them;
4. be **observable** skills (career-specific or transferable), knowledge, attitudes, and/or values;
5. be **relevant** to meet the needs of students, employers, and transfer institutions;
6. be **rigorous** yet realistic outcomes achievable by students

Curriculum Map Directions

Note: If you have multiple degrees/certificates, choose one to map. If you have already submitted mapping to the SLO committee and do not wish to make changes, you may copy that mapping into this chart or attach the map you already created.

1. In the boxes across the top row, review all the non-GE courses required for your degree/certificate. (including those that aren't in your discipline). Make any desired changes to those courses. (Electives do not need to be included, though they may).
2. In the left column, write the program learning outcomes you have drafted for your program.
3. In the boxes in the center of the page, mark the course SLO that maps to the program SLO you have identified. Each program SLO should map to multiple courses in your program.

Example: English Associate's Degree for Transfer						
Program Learning Outcomes	Required Courses in Degree/Certificate					
	Eng 4	Eng 7	Eng 35	Eng 41	Electives* (Eng 20, 32, 45, 44)	MSCM 1*
1. Identify and evaluate implied arguments in college-level literary texts.	x					
2. Write an academic essay synthesizing multiple texts and using logic to support a thesis.	x	x				
3. Write a research paper using credible sources and correct documentation.	x	x				x
4. Analyze an author's use of literary techniques to develop a theme.			x	x	x	

*Including electives is optional.

understanding of Organic Chemistry as measured by the ACS Full-Year Organic Chemistry Exam.															
3.															
4.															
5.															
6.															

1. Did you make any changes to your existing mapping? (circle one)

Yes

No

This degree/certificate did not have previous mapping

2. If you answered "yes" to Question 1, explain what changes you made.

N/A

3. Reflection Questions: The following questions are for the consideration of your program as you look at your completed chart. You do not need to record your responses here. If you discuss these questions with others (for example, at a department meeting), you may want to take minutes documenting your discussion.

- a. How many courses help students achieve each program outcome? Do students have enough opportunities to achieve the outcome?

Yes. The material covered in the national assessment exams are covered in a total of 4 chemistry courses.

- b. In which course(s) are students likely to demonstrate satisfactory achievement of each program outcome? In other words, which courses(s) might be an official or unofficial capstone requirement?

Chemistry 1B where students complete the entire General Chemistry curriculum needed to demonstrate proficiency in the ACS General Chemistry Full Year Exam.

Chemistry 12B where students complete the entire Organic Chemistry curriculum needed to demonstrate proficiency in the ACS Organic Chemistry Series Exam.