



Annual Program Review 2012-2013 - INSTRUCTIONAL REPORT

Division - Program

CHEMISTRY

Authorization

After the document is complete, it must be reviewed and submitted to the Program Review Committee by the Division Chair.

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1.0. Trend Analysis

For each program within the division, use the data provided to indicate trends (e.g., steady, increasing, decreasing, etc.) for each of the following measures.

Program	Academic Year	FTEs Trend	FTEF Trend	WSCH / FTEF Trend	Full-Time % Trend	Fill Rate Trend	Success Rate Trend	Awards Trend
Chemistry	2008-2009	477	25	609	57.4%	107.7%	67.6%	0
	2009-2010	531	26	647	51.9%	110.8%	68.5%	0
	2010-2011	453	28	515	49.3%	104.3%	67.2%	0
	2011-2012	452	28	513	56.3%	101.2%	65.6%	0
	% Change	-5.2%	+12.6%	-15.8%	-1.1%	-6.5%	-2.0%	--
	Four-Year Trend	stable	increasing	decreasing	stable	stable	stable	--

1.1 Describe how these trends have affected student achievement and student learning:

The trends mostly show stability during academic years 2010-2011 and 2011-2012. Despite the financial hardship experienced among California community colleges during the past few years, the Chemistry offerings have not been affected yet such that FTEF trend even shows a slight increase of 12.6 percent. There is a decrease of 15.8 percent in the WSCH-to-FTEF ratio trend despite the increasing FTEF trend. This decrease is due to improvement in compliance with OSHA and fire safety standards on the maximum seat loads in chemistry laboratory classrooms. Since 2010, the maximum number of students for every laboratory has been strictly enforced and virtually no over-enrollment has been allowed. As a result of this measure, laboratories are safer, less congested, and more learning conducive than before.

- 1.2** Please explain any other relevant quantitative/qualitative information that affects the evaluation of your program?

[Click here to enter text.](#)

2.0. Student Learning and Curriculum

Course Level

Year	SLOAC Course Count		% of Courses Assessed
2010-2011	7	100.0%	100.0%
2011-2012	7	100.0%	100.0%
% Change	0	+0.0%	+0.0%
Four-Year Trend		stable	stable

Provide the following information on each department and program within the division.

List each program within the division	Active Courses with Identified SLOs		Active Courses Assessed		Course Sections Assessed	
	N / N	%	N / N	%	N / N	%
Chemistry	7/7	100	6/7	86%	14/26	54%

- 2.1** Please comment on the percentages above.

With all the SLO's identified, and all but one course assessed, all the sections will be assessed in the next year or two.

- 2.2** Using the results from your division/departments recent assessment reports, please summarize any pedagogical or curricular changes that have been made as a result of your course assessments.

[Click here to enter text.](#)

- 2.3** Please list all courses which have been reviewed in the last academic year.
Note: Curriculum Review is required by the Chancellors Office every 6 years.

No formal review has been performed on any of the courses in Chemistry, but Chemistry 105 lecture-laboratory integrated course has had two positive changes during the past academic year:

1. The laboratory curriculum has been mostly revised. Asmik Oganessian; one of our organic chemistry faculty members; utilized the STEM grant resources for running a hands-on methodological research course with a few students during the Summer of 2012, geared

towards this goal. During this intensive research period, some new and some existing experiments were tested and improved which resulted in development of a new laboratory curriculum and manual aimed towards more effective and less costly learning. The new laboratory manual is now in its first semester of test run by the students and will go through minor improvements and revisions in the future.

- To make the covered concepts more thematic, continuous, and easier-to-follow by the students, the sequence of coverage was slightly altered.

Degree, Certificate, Program Level

List each degree and certificate, or other program* within the division	AA/AS Degree PLO Identified		AA/AS Degree Assessment Cycles Completed		Certificate PLO Identified		Certificate Assessment Cycles Completed	
	YES	NO	YES	NO	YES	NO	YES	NO
Chemistry	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

- 2.4 Please comment on the percentages above.

The department of Chemistry does not have any degree/certificate program. The only such program within the division of Physical Sciences, is an AA program in Physical Sciences.

- 2.5 Using the results from your division/departments recent assessment reports, please summarize any changes that have been made as a result of your program level assessments. Your summary should include a summation of the results of all degrees, certificates, and other programs which were recently assessed.

N/A

- 2.6 Please list all degree/certificate programs within the division that were reviewed in the last academic year.

N/A

- 2.7 What recent activities, dialogues, discussions, etc. have occurred to promote student learning or improved program/division processes in the last year?

Mark an "X" in front of all that apply.

<input checked="" type="checkbox"/>	Curricular development/revisions of courses
<input type="checkbox"/>	Curricular development/revision of programs
<input checked="" type="checkbox"/>	Increased improved SLO/PLOs in a number of courses and programs
<input checked="" type="checkbox"/>	Other dialog focused on improvements in student learning

	Documented improvements in student learning
	Increased/improved SLO/PLOs in a number of courses and programs
	New degree or certificate development
	Best Practices Workshops
X	Conference Attendance geared towards maintaining or improving student success
X	Division Retreat in 2011-2012
	Division or department attendance at Staff Development activity geared towards maintaining or improving student learning
	Division Meeting Minutes
X	Reorganization

Please comment on the activities, dialogues, and discussions above

1. 2010, 2011, 2012: In addition to the faculty attending conferences, workshops, and science lectures regularly, our students have attended and presented their research in two conferences during the last two academic years. These students presented the findings and results of their research lead by Asmik Oganeyan during the past two Summer and Winter sessions.
2. 2011: All of our full-time as well as some adjunct faculty members participated in the annual Physical Sciences Division retreats, where sessions were held mainly on best practices, SLO's and curriculum improvement.
3. 2012: Two meetings were held between the Chemistry department and the Biology division focusing mainly on developing measures and practices that would facilitate the instruction and enhance the learning of students who take courses in both fields of study. These measures ranged enhancement of the offerings to minimize time conflicts for certain courses between the two departments to enhancement of the curriculum in Chemistry to better satisfy the needed pre-requisites in biology courses.

3.0 Reflection and Action Plans

- 3.1 Based on your data and analysis presented above, as well as on issues or items that you were unable to discuss above, comment on the Strengths and Weaknesses of the Program

Strengths

List the current strengths of your program

1. Completely mirrored offerings between the day and the evening parts of the program: This serves the students offering them better flexibility for their schedule, and therefore grants them higher likelihood to enroll.
2. A high rate of transfer to reputable four-year colleges majoring in engineering, biological, and physical sciences.

3.2 Weaknesses

List the current weaknesses of your program

1. Insufficient fume hood space in Organic Chemistry laboratory: This results in an overly congested fume hood area which adversely affects the student learning as a result of having the students perform experiments in groups of two and share glassware instead of allowing individually performed experiments.

2. Shortage of full-time faculty members: During the past several years the department has experienced five retirements which have been only partially replaced by 2.6 permanent full-time hires.

3. Insufficient number of FTE's allocated towards chemistry course. During the past several years, the overwhelming majority of our courses have been in a higher demand than our offered sections, such that long waitlists of potential students have been left unenrolled.

3.3 Using the weaknesses, trends and assessment outcomes as a basis for your comments, please briefly describe any future plans and/or modifications for program/division improvements. Any plans for reorganization should also be included, along with a resource request if applicable.

Plans or Modifications	Anticipated Changes/ Improvements	Link to EMP, Plans, SLOs, PLOs, ILOs
To structurally modify (or to add a new) Organic laboratory room to accommodate more fume hoods.	More work space for students possibly resulting in individually performed experiments. Each student will have a complete experience of the laboratory work.	Chem.105, SLO # 5, 6, 7 Chem 106. SLO # 4,5,6,7
Hire more permanent faculty members.	Improved management of the program, improved faculty participation in committees, and more effective and efficient undertaking of different projects that arise to improve the quality of instruction.	Chem. 110, 101, 102 105, 106 All SLO's will be affected
Allocation of a larger number of FTE's by the college administration.	Accommodation of a larger number of students, thus registering growth in the size of the departmental offerings and operations.	Chem. 110, 101, 102 105, 106 All SLO's will be affected

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2012 PROGRAM REVIEW**Section 4
Resource Request****PHYSICAL SCIENCES-
Chemistry
Lab Equipment****I:PS.Ch-1****Mark Type of Request:**

	Facilities/Maintenance	X	Computer Hardware for Student Use
X	Classroom Upgrade		Computer hardware or Faculty Use
X	Instructional equipment		Software/Licenses/Maintenance/Agreements
X	Non-Instructional Equipment	X	Conference/Travel
	Supplies		Other

4.1

Item #	Type of Request	Resource Request	Amount Requested
1	Non-Instructional Equipment	*Justrite Corrosive liquids storage cabinet; 22" H X 17" W X 17" D; meets Cal/OSHA and NFPA codes	1 @ \$421.00 = \$421.00
2	Non-Instructional Equipment	*Justrite Flammable liquids storage cabinet; 65H X 34W X 34D; meets Cal/OSHA and NFPA codes	1 @ \$898.00 = \$898.00
3	Instructional Equipment	*Corning digital hot plates 5 x 7 inch Pyroceram top, # 6795-400D	6 @ \$263.25 = \$1579.50
4	Non-Instructional Equipment	*Stainless steel lab carts with guard rails; 300 lb capacity, #AP5432	2 @ \$363.40 = \$726.80
5	Instructional Equipment	*Chargers for Mac laptops programmed for use in the laboratory	4 @ \$100.00 = \$400.00
7	Instructional Equipment	Thermo Scientific Digital Spectrophotometers (Spectronic 200)	4 @ \$1300.00 = \$5200.00
8	Non-Instructional Equipment	Crest Office Furniture Laboratory Stools #12224-RG	<u>30 @ \$73.50</u> = \$2,205.00
9	Non-Instructional Equipment	Crest Office Furniture Laboratory Black Chairs #WS25-GLD-	10 @ \$176.26 = \$1,762.60
10	Non-Instructional Equipment	Crest Office Furniture Office Chairs (For Chem. Stockroom) #1760-M1-A4	5 @ \$267.69 = \$1,338.45
			Total \$14,530.05

*Items are repeat requests from previous program review.

4.2 Funding

X	Requires One Time Funding
	Requires Ongoing Funding
X	Repeat Request
	Year(s) Requested

4.3 Please check if any off the following special criteria apply to this request:

X	Health & Safety Issue
	Accreditation Requirement
	Contractual Requirement
	Legal Mandate

Please explain how/why this request meets any of the above criteria.

With respect to the laboratory equipment, a shortage implies congestion at the area of use, which automatically increases the probability for accidents and hazardous conditions. The flammable and corrosive storage cabinets will directly affect the air quality in laboratories.

4.4 Justification and Rationale: What EMP Goal, plan, SLO, PLO, or ILO does this request address? Please use information from your report to support your request.

Eliminating the shortage of badly needed laboratory equipment will improve student morale and enhance the efficiency of student learning across the board for all SLO's. More importantly, it will decrease the number of visits to the health center due to a lower number of laboratory accidents.

4.5 What measurable outcome will result from filling this resource request?**APPROVAL**

AGENCY	DECISION	
The Program Review Committee has reviewed the information in this request and finds it to be:	COMPLIANT	X
	NON COMPLIANT OR INCOMPLETE	
	a) Request not adequately described or incomplete	
	b) Request not linked to assessments or assessments not completed	
	c) Request not linked to EMP, plan or SLO,PLO or ILO	
	d) Report Incomplete	
PRC Comments		

Form Revised 9.19.12

Reports determined to be "Non-Compliant" will be returned to the division member responsible. Reports must be resubmitted with needed changes to the Program Review Office. Requests will not move forward in the budget process if the report or request is Non-Compliant.

2012/13 PROGRAM REVIEW**CHEMISTRY*****FT Chemistry Faculty -
Replacment*****I:PS.Ch-2****Section 4
IHAC Request**

Special Note: This is an updated revision to an older IHAC due to a retirement in June 2012 of a Chemistry faculty member (Judy Handley). Chemistry is down 2.33 fulltime faculty since 2005. 2.33 out of the original 7 is 33 %

If this is a repeat request, please list the Resource ID code or year requested: __2011__

4.1 The Office of Instruction will provide data on instructional hires during the past five years, including the full-time percentage of each new hire.

a) Number of full-time faculty currently assigned to the Program	4.67
b) Number of full-time faculty assigned to the Program in 2005	7
c) Does this position cover classes currently taught by adjuncts? Yes or No	Yes
d) Does this position contribute to program expansion? Yes or No	No

4.2 CPF Index (Committees Per Full-time Faculty)

1. Total number of full-time faculty members in this department/program.	4.67
2. Total number of committees in which all FT faculty members in this area participate (Governance and other campus related committees & participation).	5
3. CPF INDEX (Total of # 2 divided by #1)	1.07

4.3 Status of Released Time Faculty NONE

Faculty Name	Release Time Position	% RT	Term of Assignment
No chemistry faculty currently have release time.			

4.4 How does this assignment relate to the college's Mission Statement?

The chemistry program prepares students for careers ranging from medicine to engineering and exposes students to the rich scientific culture on which modern society is based.

4.5 How does this position relate to the objectives and functions of the college?

- | | |
|----------------------------------------|------------------------------|
| a) Associate Degree | d) Basic Skills development |
| b) Transfer to a four-year institution | e) Noncredit Adult Education |
| c) Career and Technical Education | f) Personal enrichment |

Associate Degree, Transfer to a four-year institution, Career and Technical Education, and Personal enrichment.

- 4.6** Describe how this position enhances student success. Ex: enhances instructional skills, meets community or industry needs. Contributes to state of the art technical education, etc. What measureable outcome will result from filling this request?

There is tremendous demand in this community for chemistry, which this college needs to meet, because students see chemistry as a key to their success in pursuing careers in health, engineering, and other science professions, There is also a very large nationwide and regional demand to fill such positions.

The key negative impact is loss of instructional quality as control over curriculum and instruction is lost to adjunct faculty who have no vested interest in the program as a whole. Loss of instructional quality in the chemistry sequence of courses produces students with less potential for success in subsequent chemistry courses as well as the other science courses, such as biology, for which chemistry is a prerequisite both at GCC and transfer institutions.

Because we are a small department, it is sometimes difficult to fill positions for hiring committees and take care of other professional responsibilities for the department and the college.

The number of students on the Wait-Lists increases each semester.

GCC loses many of the wait-listed students who are unable to enroll in our chemistry classes and who then often go elsewhere to other educational institutions.

The Chemistry department needs to update its use of technology in the classroom and revise many of its labs. This important work requires more full-time staff. Advanced computer hardware and software like Data Studio and logger pro need to be introduced into the labs in order for them to stay up to date. Another fulltime person would greatly help to make this happen,

- 4.7** Are there anticipated negative impacts for not hiring this position? If so describe.

Chemistry will continue to be severely impacted and this will begin to cause enrollment decreases in Biology, Mathematics, and Physics as students transfer to where they can get the classes.

- 4.8** Are there any other special concerns not previously identified? If so, please explain.

a) The biology division has contacted the chemistry department regarding academic standards. Their perception is that students' chemistry preparation for Biology 101 has declined in the last few years, coincident with loss of full-time faculty in chemistry.

b) The number of students wait-listed for "feeder" chemistry courses has increased drastically over the past few years with numbers of wait-listed students totaling the equivalent of several sections.

c) Committee assignments among chemistry faculty may be lower than other divisions due to the number of afternoon chemistry labs that full-time faculty are needed to teach and which conflict with many scheduled committee meetings.