College of San Mateo

ANNUAL UPDATE PROGRAM REVIEW & PLANNING

Form Approved 9/2/2008: Governing Council
Revised: 2/14/2012

The Program Review process should serve as a mechanism for the assessment of performance that recognizes and acknowledges good performance and academic excellence, improves the quality of instruction and services, updates programs and services, and fosters self-renewal and self-study. Further, it should provide for the identification of weak performance and assist programs in achieving needed improvement. Finally, program review should be seen as a component of campus planning that will not only lead to better utilization of existing resources, but also lead to increased quality of instruction and service. A major function of program review should be to monitor and pursue the congruence between the goals and priorities of the college and the actual practices in the program or service.

~Academic Senate for California Community Colleges

INSTRUCTIONS

This *Annual Update for Program Review and Planning* is due each year that your *Comprehensive Program Review and Planning* report is not due.

(For information about program review cycles, see Instructional and Student Services program review rotation schedules posted online in their respective sections of the program review webpage: http://collegeofsanmateo.edu/prie/program_review/program_review.php)

Resources for Supporting Documentation:
A listing of resources and documents which provide data or information for each section is included at the end of this document, after the final signature page. These resources are posted online and their URLs are listed at the end of this document.

(You may delete this section, when you submit your final program review.)

Next Steps:
All *Annual* and *Comprehensive Program Review and Planning* reports are due March 25, 2012. This date is aligned with CSM's *Integrated Planning Calendar.*
(See: http://collegeofsanmateo.edu/prie/planning.asp)

Upon its completion, please email this *Program Review and Planning* report to the Vice President of Instruction, the Vice President of Student Services, the appropriate division dean, the CSM Academic Senate President, and the Dean of Planning, Research, and Institutional Effectiveness (PRIE).

James Carranza, Academic Senate President, carranza@smccd.edu
Susan Estes, Vice President of Instruction, estes@smccd.edu
Jennifer Hughes, Vice President of Student Services, hughesj@smccd.edu
John Sewart, Dean (PRIE), sewart@smccd.edu

DEPARTMENT OR PROGRAM:

DIVISION:

1. **BRIEF DESCRIPTION OF PROGRAM:**

The Chemistry program offers the first two years of chemistry courses to serve two major tracks:

1) The first two years of chemistry required for a baccalaureate in various majors such as biology, chemistry, engineering etc.
2) Various chemical courses required for certificate or two year programs such as nursing, dental assisting, lab technologist etc.

Courses offered in chemistry include:

Chem 192 Elementary Chemistry – a first introductory course in chemistry for non-science majors, remedial preparation or some certificate programs. Prereq: Math 110 or one semester algebra. Recommended: enroll concurrently in MATH 115 or MATH 120 or 122.

Chem 210 General Chemistry I – first semester general chemistry for science majors. Prereq: CHEM 192 with a grade of C or better or equivalent; MATH 120 with a grade of C or better. Recommended: eligibility for ENGL 838/848 and one course in physics.

Chem 220 General Chemistry II – second semester general chemistry for science majors. Prereq: Chem 210 with a grade of C or better.

Chem 231 Organic Chemistry I – first semester organic chemistry for science majors. Prereq: Chem 220 or 225.

Chem 232 Organic Chemistry II – second semester organic chemistry for science majors. Prereq: Chem 231

Chem 250 Analytical Chemistry Quantitative Analysis – Introduction to chemical analytical procedures. Prereq: Chem 220 with a grade of C or better.

Chem 410 Health Science Chemistry I – a first introductory course in general chemistry for some health professions. Prereq: None Recommended: MATH 110 or one semester course of algebra, eligibility for ENGL 848.

Chem 420 Health Science Chemistry II – a first introductory course in organic/biochem for some health professionals. Prereq: Chem 410

2. Based on the elements in your *Core Program and Student Success Indicators* (provided by PRIE for each program) and the goals stated in your most recent Program Review, please identify any key successes and challenges.

During the 2010-11 year there has been a slight decrease in Headcount from 938 to 871 (7%) and at the same time load remained constant 589 (2010) from 587 (2011).

Organic chemistry courses are being modified somewhat and a new hybrid part online course is being developed for debut in the 2012-13 school year. Starting Fall 2012, CHEM231 will be offered as a Web-assisted course: students meet for 2 lecture hours on campus, 1 recitation-lab hour on campus and 3 lab hours on campus. Additionally, there are 1 lecture hour and 2 lab hours online as well as 1 hour per week of hours-by-arrangement. The challenge would be a smooth transition from a traditional fully on-campus course to this web-assisted format. But there is plenty of support from both the district level – in the form of STOTI training – and the division level which has a technology committee whose aim is to foster peer-learning and support among instructors currently actively engaged in or are interested in online teaching.

The new textbook with the online homework system has been evaluated to be a failure and the text is being changed back in the general chemistry courses. Problems with the online homework system included a multitude of errors that remained uncorrected for several semesters and trouble entering the chemistry symbols that answers often required.

3. Are you on track for meeting the goals/targets that your program identified in its most recent Program Review? If not, please explain possible reasons why. If needed, update your goal/targets based on these reasons.

The online questionnaire developed for SLO evaluations is now running smoothly and is being used by a number of chemistry courses. This approach is turning out to be easy to administer and gives good data summaries of student successes.

The hiring committee is currently working on hiring a new faculty member which is a much needed addition to the department. Hopefully a new faculty member will be hired and in place for the Fall semester 2012.

4. Have you identified any new goals or projects for the program to focus on during this next year? Please explain (grants, stipends, initiatives, etc.).

Since the 2012-13 school year may be the last year of employment for Dr. Clay and he has developed many of the lab manuals and computer programs used in various lab sections, he plans to apply for professional development to update, edit and finalize various parts of these. Also, after Dr Clay retires the chemistry department will need another full time hire in order to easily cover the entire chemistry offering without overload units.

AS mentioned above the Chem 231 course is being updated as a part online hybrid course. Once this proves successful this approach will be extended to Chem 232.

5. Are there any critical issues you expect to face in the coming year? How will you address those challenges?

CSM chemistry department has greatly expanded its technological capabilities to include a wide array of instrumentation in recent years. These instruments have provided our students with real world skills, conferring additional advantages as they pursue either transfer or vocational training pathways. The level of complexity of these instruments have added unforeseen stresses that if unanswered may result in a loss of this incredible advantage.

These stresses are the lack of a dedicated individual to maintain these highly complex educational investments. The lack of a dedicated individual puts these resources in jeopardy should they require intricate repair. This need could also be met with additional training of existing staff members. Either a dedicated individual or sufficient release time would also have the ability to perform the necessary work to integrate these resources across courses, engraining these real world skills within the curriculum.

In addition to having the technical know how to make repairs, there is the need for resources to pay for replacement parts. Typically, the costs for parts that wear out in time are covered within a service contract. Service contracts are a means of insurance to make certain these resources are always available to our students.

6. STUDENT LEARNING OUTCOMES (SLOs) AND ASSESSMENT FOCUS FOR THIS YEAR:

a. Academic areas: Identify at least one course SLO on which to focus. Describe the assessment strategies you will use and your method of reflection and documentation for this cycle.

For the last program review cycle, faculty worked on developing a student centered web-based SLO evaluation questionnaire for the courses CHEM192, CHEM410, and CHEM420. This model was later adopted by CHEM210 and 220 also. It has proven to be a successful approach. All these courses listed so far are up-to-date with SLO assessments.

This year, CHEM420 will continue using this questionnaire model to complete its current 3-yr cycle of SLO assessments.

Additionally, CHEM232 will complete SLO assessment during Spring 2012. This will be done through a series of quizzes and midterm exams which are then graded. Acceptable pass levels have been determined to be 75%+ of students gaining a grade C or better.

b. Student services areas: TBD

7. **SUMMARY OF RESOURCES NEEDED TO REACH PROGRAM ACTION STEPS**
(Data resources: Educational Master Plan, 2008 (EMP); Data Updates to EMP, 2011-12; Institutional Priorities, 2008-2011; 5 & 5 College Strategies; College Index, 2008/9-2011/12; GE-SLOs; SLOs; other institutional data; department records; Core Program and Student Success Indicators; previous Program Review and Planning reports)

a. In the matrices below, itemize the resources needed to reach program action steps and describe the expected outcomes for program improvement.* Specifically, describe the potential outcomes of receiving these resources and the programmatic impact if the requested resources cannot be granted.

**Note:* Whenever possible, requests should stem from assessment of SLOs and the resulting program changes or plans. Ideally, SLOs are assessed, the assessments lead to planning, and the resources requested link directly to those plans.

Full-Time Faculty Positions Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
One full-time faculty position	This is in truth a "put on notice" request. If a new hire is brought on board in the 2012-13 year there will be enough chemists to cover all loads (5 total). When Dr Clay retires the department will fall back to its current position of needing overload units to cover all of the chemistry offerings. At that point another full time hire would be highly desirable.	Having a full set of professors to give technical students greater access to instructors is very important in the technical development and mentoring process. This greatly facilitates the completion of SLO's by students.

Classified Positions Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.
One instrument and computer maintenance technician	The CSM chem department presently has the following state of the art instrumentation; one GCMS (gas chromatography mass spectrometer) instrument, three GC (gas chromatography) instruments, one FTIR (Fourier transform infra-red spectrophotometer) instrument, ten UV/VIS spectrophotometer instruments, one AA (atomic absorption spectrophotometer) instrument, two laptop computer carts with 10 laptops per cart and thirty MeasureNet stations with several different types of probes for each station. With the growing number of instruments required for our students to stay current and be prepared for transfer or finding a job, it has become impossible for the faculty to have enough time to keep up with the maintenance of these sophisticated pieces of equipment. Therefore, we are	Input text here.

	requesting a new technician to maintain and update these instruments as needed. If granted, the instruments will be maintained properly and will have a longer life expectancy. If not granted, the instruments will not be maintained properly and will have a shorter life expectancy. They will break more often and will not be able to be used by the students.	

b. For instructional resources including equipment and materials, please list the exact items you want to acquire and the total costs, including tax, shipping, and handling. Include items used for <u>instruction</u> (such as computers, furniture for labs and centers) and all materials designed for use by students and instructors as a learning resource (such as lab equipment, books, CDs, technology-based materials, educational software, tests, non-printed materials). Add rows to the tables as necessary. If you have questions as to the specificity required, please consult with your division dean. Please list by priority.

Resources Requested	**Expected Outcomes if Granted and Expected Impact if Not Granted**	**If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.**
Item: Windows Computer for Chemistry Software Development Number: 1 Vendor: HP Total Cost: $3,000 Status: New	The ability to maintain the large array of educational software designed and developed by CSM Chemistry Professor Mike Clay. A failure to have a system capable of providing this capability will result in the loss of these CSM specific resources that have greatly benefited our students for over two decades	Maintaining the integrity of the software that controls various real world data collection from a variety of scientific instruments, allows CSM students to have this real world exposure that employers want.
Item: General Chemistry Bench top Replacement Number: 1 Vendor: iSEC Total Cost: $80,000 Status: New	The bench tops in our Gen. chem. labs require a refocus and simplification in order to have maximal educational impact for CSM chemistry students. These areas were designed for a usage pattern that is no longer practiced. Pedagogy has advanced in recent years and remaking these bench tops will allow CSM Chemistry to reflect these	

	new practices. Failure to remake these units will result in CSM students having a less than optimal chemical educational experience.	
Item: Organic Chemistry Bench top Replacement Number: 1 Vendor: iSEC Total Cost: $40,000 Status: New	The reworking of the organic chemistry laboratory will have the immediate impact of increasing the overall number of students that can be served at CSM. This will have the additional impact of increasing efficiency of this course, as measured using load. A failure to fund this project will continue to limit the number of students that can be physically accommodated in this classroom, a deflation of the LOAD factor computed.	
Item: Instructor's demo portable fume hoods **Number:** 2 **Vendor:** Fisher Scientific **Unit price:** $5K **Total Cost:** $10K **Status*:** New	Better demo teaching during lab hours. Chemistry is experiment-heavy and teaching demos are important in ensuring student safety and success during lab time.	Lab safety and competence are either stated or implied in all chemistry courses. For example: Demonstrate laboratory skills with special reference to multi-step organic synthesis and structural determination
Item: 10 Laptops & Cart **Number:** 1 cart & laptops **Vendor:** HP **Unit price:** $14,700 **Total Cost:** $14,700 **Status*:** New	The current heavily used cart systems (2) are now 6 years old and will need to be upgraded since they are currently beyond their serviceable years.	Many chemistry and science SLO skills are taught with computer support including graded assignments, web data searching and various visualizations.

Status = New, Upgrade, Replacement, Maintenance or Repair.

8. PROGRAM REVIEW PARTICIPANTS AND SIGNATURES

Date of this *Annual Update for Program Review and Planning* evaluation:

Please list the department's *Annual Update for Program Review and Planning* report team as appropriate:

Primary program contact person: Michael Clay
Phone and email address: 574-6604 clay@smccd.edu
Full-time faculty: Kate Deline, Jeff Flowers, and Yin Mei Lawrence
Part-time faculty:
Administrators: Charlene Frontiera
Classified staff: John Dao
Students:

Michael Clay	**3/23/2012**
Primary Program Contact Person's Signature	*Date*
Full-time Faculty's Signature	*Date*
Part-time Faculty's Signature **(as appropriate)**	*Date*
Classified Staff Person's Signature **(as appropriate)**	*Date*
Student's Signature **(as appropriate)**	*Date*
Dean's Signature	*Date*

Annual Program Review
RESOURCES FOR SUPPORTING DOCUMENTATION

This section contains a listing of sources for data and key documents referred to in this *Annual Update* along with other resources. Contact information for relevant people is also included.

Academic Senate
http://www.collegeofsanmateo.edu/academicsenate/
Contact: csmacademicsenate@smccd.edu
James Carranza, Academic Senate President, carranza@smccd.edu, (650) 574-6568

College Catalogs and College Class Schedules are archived online:
http://collegeofsanmateo.edu/schedule/archive.asp

Course Outlines are found at:
http://collegeofsanmateo.edu/articulation/outlines.asp

Committee on Instruction
http://collegeofsanmateo.edu/committeeoninstruction/
Contact: Teresa, Morris, morrist@smccd.edu, (650) 574-6617.

Program Review Resources (includes forms, data, and completed program reviews for both instructional and student services program review)
Note: PRIE has a new website as of 2/15/2012; Program Review resources will temporarily be housed at "old" site as we makes the transition to a new site:
http://collegeofsanmateo.edu/prie/program_review/program_review.php

Core Program and Student Success Indicators (See links for *"Quantitative Data for Instructional Programs")*
Distance Education Program Review Data
Glossary of Terms for Program Review
Listing of Programs Receiving Program Review Data from PRIE
Rotation Schedule for Instructional Program Review, 2008-2014
http://collegeofsanmateo.edu/prie/program_review/program_review.php

Office of Planning, Research, and Institutional Effectiveness (PRIE)
(Note: PRIE has a new website as of 2/15/2012; the URL will remain the same.)
http://collegeofsanmateo.edu/prie/
Contact: John Sewart, Dean, sewart@smccd.edu, (650) 574-6196
Contact: Milla McConnell-Tuite, Coordinator, mcconnell@smccd.edu, (650)574-6699

At PRIE Website
College Index, 2008/9-2011/12,
http://collegeofsanmateo.edu/institutionalresearch/collegeindex.asp
Educational Master Plan, 2008, http://collegeofsanmateo.edu/prie/planningdocs.asp
Educational Master Plan, Data Updates, 2011-12
http://collegeofsanmateo.edu/institutionalresearch/
Institutional Priorities, 2008-2011
http://collegeofsanmateo.edu/prie/planningdocs.asp
Five in Five College Strategies, http://collegeofsanmateo.edu/prie/planningdocs.asp

Student Learning Outcomes (SLOs) website:
http://www.collegeofsanmateo.edu/sloac/
Contact: David Locke, SLO Coordinator, Locke@smccd.edu,(650)574-6624
Also see PRIE site for SLO assessments' support: http://collegeofsanmateo.edu/prie/slos.asp