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SIGNATURE SHEET FOR SELF STUDY

NAME OF PROGRAM: Chemistry Department, Physical Science Division

The following personnel were involved in the program self study and development of the recommendations:
Rod Oka (Department Chair); Mark Bishop; Todd Ritsema; Ron Rinehart

PROGRAM HEAD COMMENTS:
 The chemistry department takes pride in its dedication to students. We are all committed to providing our students with the best possible educational experience, despite the budget restrictions that the department faces. Whether our students are completing their education at MPC or transferring to other colleges or universities, we offer courses that fulfill their many different needs. We have been careful to make our classes comparable to the classes given at the University of California and CSU campuses. Our goal is to do whatever we can to continue to provide quality courses, including making changes to keep up with rapidly changing technologies.

ROD OKA	ROD OKA	11/2/06
<i>Name (Please Print)</i>	<i>Signature</i>	<i>Date</i>

DIVISION CHAIR OR MANAGER COMMENTS:

<i>Name (Please Print)</i>	<i>Signature</i>	<i>Date</i>
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DEAN OR V.P. COMMENTS:

<i>Name (Please Print)</i>	<i>Signature</i>	<i>Date</i>
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PROGRAM REVIEW SELF STUDY

PART I: PREAMBLE

The Chemistry Department offers a selection of courses tailored to meet the needs of students with a wide variety of backgrounds, interests, goals, and intended majors. We take pride in the quality of instruction that we offer and in the relevance, currency, and transferability of our courses. Perhaps the foremost distinction of our department is its outstanding faculty. The three full-time and one part-time faculty members are all dedicated and enthusiastic instructors with a combined total of over 115 years of teaching experience. Although each member has his own teaching style, all present an open and relaxed classroom atmosphere. Each member takes great pains to remain up-to-date in his field, and we have made great strides in incorporating modern instructional technology as well as maintaining solid pedagogical skills. In addition to presenting the essential facts, concepts, and theories of the subject, each of our courses enhances the development of our students in areas such as: acquiring study skills and critical thinking skills, exercising personal responsibility, becoming aware of current issues in science and technology, and appreciating the importance of chemistry in the environment and in all aspects of modern life.

One of the main objectives of the Chemistry Department is to ensure that our students are properly prepared for their transfer to the four-year institution. Towards this end we have carefully tailored our relevant courses (CHEM 1A, 1B, 12A, 12B) to be equivalent to UC standards. These courses are typically required for a wide range of majors in the physical sciences and life sciences.

We try to make connections between the classroom and the "real world." Topics covered in our courses include nuclear energy, the proper and improper use of drugs, environmental pollution, and the depletion of the ozone layer. The students are encouraged to learn chemistry in order to make better decisions concerning these topics both in their careers and when exercising their right to vote.

Our department is making efforts to increase the success rate of all of our students by the use of various techniques, including the availability of lecture notes, demonstrations, and lots of practice sessions, as well as by employing the latest instructional technology wherever possible. We continue to work with SI, the Supplemental Instruction program; those students who serve as tutors are carefully chosen and have themselves benefited greatly from the experience. We are sensitive to the needs of students who are educationally challenged. In these cases we work with the learning disabilities specialists. In the past we have accommodated students with physical disabilities including blindness and arthritis. We are making an effort to aid the success of minority students hoping to enter the medical fields by participating in the NIH-funded ACCESS program, Baccalaureate Bridge to the Biomedical Science, with UCSC, Cabrillo College and Hartnell College. One goal of this program is to increase minority participation in biomedical careers. Students from MPC will continue to actively participate in research at UC Santa Cruz through this program.

In keeping with the idea that this is a community college, we have provided the community with an opportunity for its young children to learn chemistry through our involvement with the Lyceum program and the MPC Community Education program ("Chemistry for Children"). Our department serves as a resource to the local schools and the community at large. Several schools have sent their students here for special programs such as a 3-hour seminar in organic chemistry. Local businesses and individuals have sought our advice many times when chemical knowledge may help solve a problem they have encountered.

The chemistry department continues to offer an excellent educational program despite budget restrictions. Our microscale techniques have significantly decreased the quantities of chemical reagents required in the laboratory, the amount of waste generated, and the cost of supplies; it has also lessened the exposure of students and staff to potentially hazardous materials. A greater number of experiments can be done, since microscale lab experiments take less time to perform than their macroscale counterparts. This transition has also updated our program and helped us to provide a modern approach to laboratory techniques. Although there has been some transitional costs in purchasing new equipment, microscale chemistry will help keep our costs down in the long run. This is especially true where waste disposal is concerned, as this is a growing expense for the chemical industry in general.

The MPC Chemistry Department has always made every attempt to add every student who wants to take chemistry, even when it means sharing lab space or, when practical, scheduling additional lab sections. Chemistry enrollments appear to be increasing. We are filling many of our lab sections to the over-flowing point. By keeping most of our lab sections full, we are extremely cost-effective. By each of the full-time instructors carrying an overload, we have saved the college money by not hiring an extra tenure-track instructor.

The table below summarizes ways in which the goals of the Chemistry Department relate to MPC's goals.

MPC Goals	Chemistry Department Goals
<p>► Enhance or maintain MPC’s instructional programs, its comprehensive, high quality curriculum, and the student services which support them to keep pace with the changing needs of student learning and the community.</p>	<ul style="list-style-type: none"> • Meet the needs of transfer students. • Offer a diverse curriculum in chemistry to inspire interest in the subject. • Respond to the community with courses, information and resources. • Improve recruitment at high schools • Interface with other campus programs to include training for technical/vocational programs (i.e., Nursing, Physical Science, Life Science). • Offer the highest quality education, including up-to-date content and instructional methods. • Increase resources for maintenance, supplies, for upgrading instruments and equipment. • Continue to expand and encourage extracurricular programs such as ACCESS and the Lyceum.
<p>► Implement measures to maintain up-to-date technology (hardware & software), adequate levels of well-trained technical support personnel, and effective staff development programs designed to provide dynamic and accessible education and work environments for the college's students, faculty and staff.</p>	<ul style="list-style-type: none"> • Continue to improve faculty technical skills • Maintain technology as a budget priority. • Continue to press for the timely use of bond money for the renovation of the Physical Science building and the provision of adequate space for mathematics instruction
<p>► Ensure effective leadership, communication, and collaborative skills of faculty, staff, students, and administration, and promote effective committee decision-making.</p>	<ul style="list-style-type: none"> • Participate in campus committees to insure that academic considerations receive the highest priority in determining the direction of the institution.
<p>► Build and/or strengthen partnerships with business and industry, community organizations, governmental agencies, public schools, universities and others that are mutually beneficial and that maximize resources in meeting the educational needs of the community.</p>	<ul style="list-style-type: none"> • Maintain good relations with four-year institutions. • Maintain an open attitude that invites the formation of new partnerships that can serve to benefit and expand the courses and programs we offer our students.
<p>► Promote diversity throughout the college, its curricula, campus environment, and students served, and expand and improve efforts that promote staff diversity through equal employment opportunity.</p>	<ul style="list-style-type: none"> • Critically examine course content for inclusion of diversity • Continue involvement in Minority Bridges Program with UCSC and neighboring colleges.

PART II: ANALYSIS

Curriculum Review (See Course Outline Review Process)

All course outlines and associated documents have been updated in October 2006 as part of this process

The Chemistry Department has developed many of its own materials for use by the students. Several of our courses have the lecture notes available in the MPC Bookstore along with our own laboratory experiment booklets. The use of our printed lecture notes translates into the students copying less during lectures and thinking more. Using our own lab books reduces the cost of education for our students. Having the students buy our packaged notes saves MPC money by reducing the number of "free" handouts passed to the students. Mark Bishop has taken the lead in applying Internet technology to support the courses that he teaches. His MPC-based website www.mpcfaculty.net/mark_bishop/ and the website for the textbook he has written www.preparatorychemistry.com are resources utilized by our other instructors as well. His Chemistry 2 and Chemistry 10 students have been using the textbook that he has written, which was published by Benjamin Cummings in 2002. Ron Rinehart has a website also based at MPC with an annotated listing of chemistry resources on the web and has also set up three course-specific websites for use by his students.

Program Information

Trends of FTES

The ratio of FTES generated by the chemistry department to campus-wide FTES number has not shown much variation, as shown in the table below. Departmental course enrollments have pretty much paralleled the campus-wide experience.

Term	Su_02	Fa_02	Sp_03	Su_03	Fa_03	Sp_04	Su_04	Fa_04	Sp_05	Su_05	Fa_05	Sp_06	Su_06
Chemistry FTES	17.34	60.94	65.51	19.54	69.29	69.71	17.26	70.37	65.61	12.73	63.39	61.12	13.44
CAMPUS FTES	1286	3742	4124.7	1277	3415.6	3996	1112	3552.4	3874	949	3282.8	4058	N/A
dept/campus	0.013	0.016	0.016	0.015	0.020	0.017	0.016	0.020	0.017	0.013	0.019	0.015	N/A

FTES/FTE ratio

As shown in the table below, the department FTES/FTE ratio appears to be within the variation experienced by the campus as a whole.

CHEMISTRY	Su_02	Fa_02	Sp_03	Su_03	Fa_03	Sp_04	Su_04	Fa_04	Sp_05	Su_05	Fa_05	Sp_06	Su_06
FTES/FTE Ratio	20.40	16.25	16.54	20.57	16.50	16.48	9.59	17.38	13.58	10.61	14.51	15.05	15.81
CAMPUS-WIDE	Su_02	Fa_02	Sp_03	Su_03	Fa_03	Sp_04	Su_04	Fa_04	Sp_05	Su_05	Fa_05	Sp_06	Su_06
FTES/FTE Ratio	18.7	14.44	15.782	22.18	16.126	16.3	16.16	16.062	15.72	12.67	14.349	15.66	N/A

Total enrollment

The overall decline in enrollment at MPC has impacted chemistry course enrollment as well.

CHEMISTRY	2002 FA	2003 SP	2003 SU	2003 FA	2004 SP	2004 SU	2004 FA	2005 SP	2005 SU	2005 FA	2006 SP	2006 SU
Sum of EnrollCen	555	569	131	331	341	115	361	315	91	321	287	87

◆ Number of sections

Variations in the number of **Summer** sections reported appear to reflect independent study (CHEM 90) activities. This may also account for the higher number of sections in Spring 2003 relative to other **Spring** figures. Fluctuations in **Fall** offerings reflect an increase in the CHEM 10 and 10L Living Room Session offerings to two per term, as well as variable enrollments in CHEM 12A, where enrollment is not always sufficient to support the evening lab section.

CHEMISTRY Count of Section	2002 FA	2003 SP	2003 SU	2003 FA	2004 SP	2004 SU	2004 FA	2005 SP	2005 SU	2005 FA	2006 SP	2006 SU
	21	22	4	22	18	6	24	19	4	24	19	5

◆ Average class size at census

CHEM 30A and CHEM 1A typically show the largest enrollments. For both courses, the fall enrollment is generally larger than the spring enrollment. Recently, attempted enrollments in the fall offerings of CHEM 30A have been sufficiently large so that an additional fourth lab section is being contemplated. There is attrition between the first and second semester of CHEM1A/1B, 12A/12B and 30A/30B sequences. Programs at MPC which mandate CHEM 30A do not require CHEM 30B.

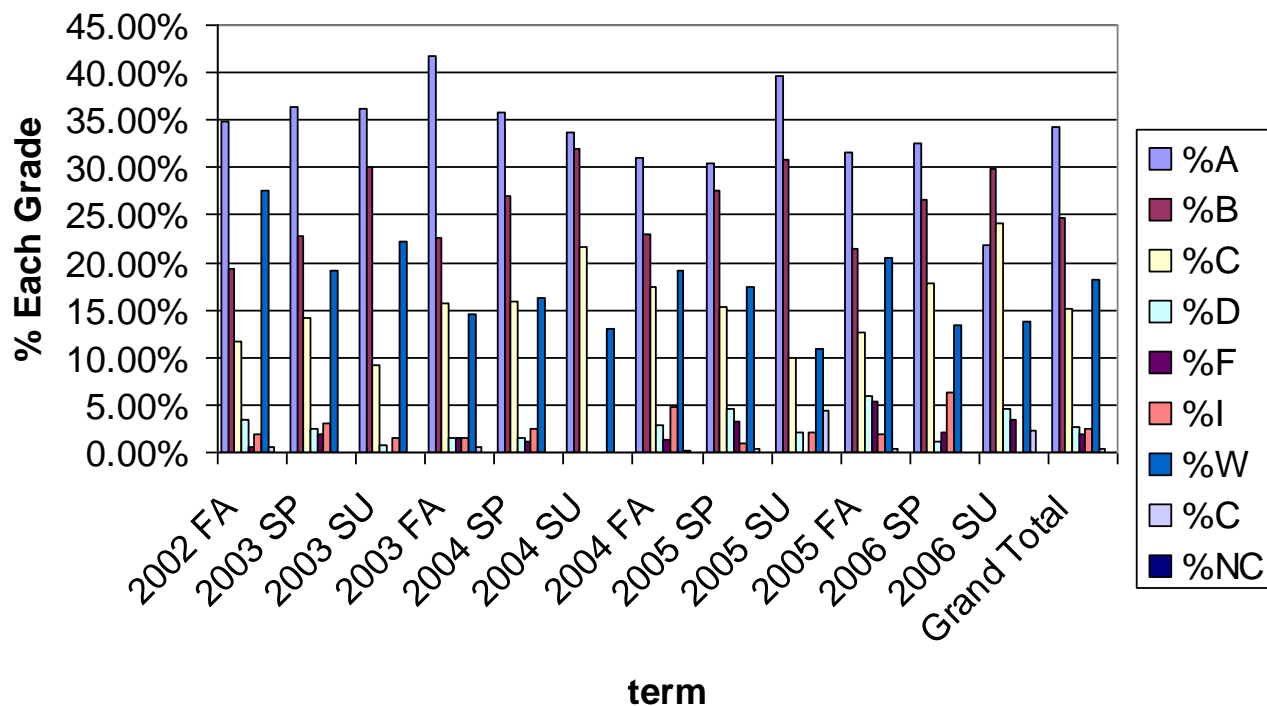
COURSE	CHEM 1A	CHEM 1B	CHEM 2	CHEM 10	CHEM 10L	CHEM 12A	CHEM 12B	CHEM 30A	CHEM 30B	CHEM 151
AVG SIZE	55.8	25.3	33.7	23.7	23.7	23.5	15.8	58.0	14.7	12.6

◆ Grade distribution

As can be seen in the chart below, there is some minor fluctuation in grade distribution from one year to another, but no striking trend is apparent. There is no reason to expect this distribution to be constant from one year to another, since it reflects a constantly changing student population.

CHEMISTRY	2002 FA	2003 SP	2003 SU	2003 FA	2004 SP	2004 SU	2004 FA	2005 SP	2005 SU	2005 FA	2006 SP	2006 SU	Grand Total
Sum of GradeA	122	133	47	135	119	39	112	93	36	100	92	19	1047
Sum of GradeB	68	83	39	73	90	37	83	84	28	68	75	26	754
Sum of GradeC	41	52	12	51	53	25	63	47	9	40	50	21	464
Sum of GradeD	12	9	1	5	5	0	10	14	2	19	3	4	84
Sum of GradeF	2	7	0	5	4	0	5	10	0	17	6	3	59
Sum of Gradel	7	11	2	5	8	0	17	3	2	6	18	0	79
Sum of GradeW	97	70	29	47	54	15	69	53	10	65	38	12	559
Sum of GradeCR	2	0	0	2	0	0	1	1	4	1	0	2	13
Sum of GradeNC	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	351	365	130	323	333	116	360	305	91	316	282	87	3059
%A	34.76%	36.44%	36.15%	41.80%	35.74%	33.62%	31.11%	30.49%	39.56%	31.65%	32.62%	21.84%	34.23%
%B	19.37%	22.74%	30.00%	22.60%	27.03%	31.90%	23.06%	27.54%	30.77%	21.52%	26.60%	29.89%	24.65%
%C	11.68%	14.25%	9.23%	15.79%	15.92%	21.55%	17.50%	15.41%	9.89%	12.66%	17.73%	24.14%	15.17%
%D	3.42%	2.47%	0.77%	1.55%	1.50%	0.00%	2.78%	4.59%	2.20%	6.01%	1.06%	4.60%	2.75%
%F	0.57%	1.92%	0.00%	1.55%	1.20%	0.00%	1.39%	3.28%	0.00%	5.38%	2.13%	3.45%	1.93%
%I	1.99%	3.01%	1.54%	1.55%	2.40%	0.00%	4.72%	0.98%	2.20%	1.90%	6.38%	0.00%	2.58%
%W	27.64%	19.18%	22.31%	14.55%	16.22%	12.93%	19.17%	17.38%	10.99%	20.57%	13.48%	13.79%	18.27%
%C	0.57%	0.00%	0.00%	0.62%	0.00%	0.00%	0.28%	0.33%	4.40%	0.32%	0.00%	2.30%	0.42%
%NC	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
%A	34.76%	36.44%	36.15%	41.80%	35.74%	33.62%	31.11%	30.49%	39.56%	31.65%	32.62%	21.84%	34.23%
%B	19.37%	22.74%	30.00%	22.60%	27.03%	31.90%	23.06%	27.54%	30.77%	21.52%	26.60%	29.89%	24.65%

Chemistry Grade Distribution



◆ Course success: grades of A,B,C,CR only

There is no reason to expect this number to be constant from one year to another, since it reflects a constantly changing student population.

CHEMISTRY	2002 FA	2003 SP	2003 SU	2003 FA	2004 SP	2004 SU	2004 FA	2005 SP	2005 SU	2005 FA	2006 SP	2006 SU	Grand Total
Sum of Retention	71.79%	78.90%	77.69%	83.90%	82.58%	87.07%	79.44%	79.34%	89.01%	74.05%	84.40%	82.76%	79.80%
Sum of GradeA	122	133	47	135	119	39	112	93	36	100	92	19	1047
Sum of GradeB	68	83	39	73	90	37	83	84	28	68	75	26	754
Sum of GradeC	41	52	12	51	53	25	63	47	9	40	50	21	464
Sum of GradeD	12	9	1	5	5	0	10	14	2	19	3	4	84
Sum of GradeF	2	7	0	5	4	0	5	10	0	17	6	3	59
Sum of GradeI	7	11	2	5	8	0	17	3	2	6	18	0	79
Sum of GradeW	97	70	29	47	54	15	69	53	10	65	38	12	559
Sum of GradeCR	2	0	0	2	0	0	1	1	4	1	0	2	13
Sum of GradeNC	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	351	365	130	323	333	116	360	305	91	316	282	87	3059
Course Success	66.38%	73.42%	75.38%	80.80%	78.68%	87.07%	71.94%	73.77%	84.62%	66.14%	76.95%	78.16%	74.47%

◆ Course retention: grades of A,B,C,D,F,CR,NC,I

There is no reason to expect this number to be constant from one year to another, since it reflects a constantly changing student population.

Mean 74.40158
 Standard Error 6.846353
 Median 81.01

CHEMISTRY	2002 FA	2003 SP	2003 SU	2003 FA	2004 SP	2004 SU	2004 FA	2005 SP	2005 SU	2005 FA	2006 SP	2006 SU	Grand Total
Sum of Retention	71.79%	78.90%	77.69%	83.90%	82.58%	87.07%	79.44%	79.34%	89.01%	74.05%	84.40%	82.76%	79.80%
Sum of GradeA	122	133	47	135	119	39	112	93	36	100	92	19	1047
Sum of GradeB	68	83	39	73	90	37	83	84	28	68	75	26	754
Sum of GradeC	41	52	12	51	53	25	63	47	9	40	50	21	464
Sum of GradeD	12	9	1	5	5	0	10	14	2	19	3	4	84
Sum of GradeF	2	7	0	5	4	0	5	10	0	17	6	3	59
Sum of GradeI	7	11	2	5	8	0	17	3	2	6	18	0	79
Sum of GradeW	97	70	29	47	54	15	69	53	10	65	38	12	559
Sum of GradeCR	2	0	0	2	0	0	1	1	4	1	0	2	13
Sum of GradeNC	0	0	0	0	0	0	0	0	0	0	0	0	0

◆ Ratio of Full-time faculty FTE to part-time faculty FTE

Other than its relationship to the FON, the significance of this statistic eludes us.

CHEMISTRY	Su_02	Fa_02	Sp_03	Su_03	Fa_03	Sp_04	Su_04	Fa_04	Sp_05	Su_05	Fa_05	Sp_06	Su_06
Sum of FTE (F/T)	0.35	3.75	3.96	0.95	4.2	3.83	1.3	4.05	4.43	0.7	4.37	3.66	0.35
Sum of FTE (P/T)	0.5	0	0	0.5	0	0.4	0.5	0	0.4	0.5	0	0.4	0.5
Ratio F/T to P/T	0.7	N/A	N/A	1.9	N/A	9.6	2.6	N/A	11.1	1.4	N/A	9.2	0.7

Describe progress made in identifying learning outcomes for the program and steps taken to collect evidence of student learning that address the outcomes specified.

The learning outcomes for chemistry courses are fairly uniform across the nation, and we are confident that we do a good job of meeting these desired outcomes. Our students do well on our exams, which include questions that are standard types of questions asked in comparable courses. Instructors compose their examinations to assess satisfaction of the course learning objectives. A list of learning outcomes is contained in the Course Outline for each course. In general chemistry and our chemistry for health science chemistry courses we give standardized American Chemical Society exams that show that our students are meeting the nationwide learning outcomes.

The Division of Chemical Education of the American Chemical Society (ACS) has written standardized examinations for most college level courses. At MPC, our department uses several of these tests (exams for CHEM 30 A, general chemistry, and organic chemistry) as instruments for collecting evidence of student learning outcomes. Assessment is an iterative process in which the exams (standardized or not) are an instrument for collecting evidence of student learning relative to our desired outcomes. By comparing the exam questions with the desired outcomes, one can determine areas of strength and areas that need improvement. These deficiencies can be addressed immediately in the case of a mid-semester exam, and adjustments made for future students. For the junior faculty member of the department, the standardized exams have provided the instructor help in determining course content, rigor, and pace. Since many our students are also taking life

science courses, our faculty also routinely consults with biology/anatomy/physiology departments to determine how to best prepare our students for these courses.

Because our students are told their percentile ranking compared to other students across the country, the standardized exams show the students how they are doing relative to the nationwide spectrum of performance. Upon completion of the year long general chemistry course and the year long organic course, the chemistry department believes that the students finishing these courses are well prepared for the ACS exams. Last year, the organic students and the general chemistry students' scores equaled the national mean. Since the allied health students will have to take a licensing examination within the next four years, it is important for them to gain experience in taking multiple choice standardized exams. The allied health students have scored at or near the national mean for their ACS chemistry exam for past few semesters.

Describe the current scope and sequence of the program's course offerings.

The courses that we offer can be placed into four categories, depending on their purpose, as follows:

- **Chemistry 1A, 1B, 12A, 12B, and 151** are for science, pre-medicine, and engineering majors. The function of these courses is to provide the transfer students with comparable courses to those taught at 4-year colleges and universities. We make an effort to teach at the level of UC courses but with a greater attention to the success of our students.
- **Chemistry 2** is the equivalent of high school chemistry. It serves the functions of providing preparation for those needing to go further in chemistry and also as a science requirement for non-science majors.
- **Chemistry 30A and 30B** provide preparation for nursing and other health-related majors.
- **Chemistry 10** is chemistry for non-science majors. Its function is to provide an overview of chemistry and the scientific method and to meet the general education lab science requirement. The course is offered in standard semester-length format in the fall semester and also as a Living Room Series (LRS) eight-week format in fall, spring, and summer sessions. The LRS course has attracted a large number of students from the Defense Language Institute and from the general community.

Describe the scheduling of your courses or delivery of services as they apply to your program or service.

The Chemistry Department has scheduled its course offerings so that students can complete the major in two years. Chemistry majors and others requiring Chemistry 1A, 1B, 12A, and 12B can complete these series by taking the normal sequence of 1A in the fall followed by 1B in the spring and then 12A and 12B in the fall and spring of the following academic year. For those students who have not yet taken high school chemistry or its equivalent (necessary for taking Chemistry 1A) we offer Chemistry 2 in the fall, spring, and summer. A student lacking this course can take it in the fall, take Chemistry 1A in the spring, and then take Chemistry 1B in the summer so that they can then complete the organic chemistry series (Chemistry 12A, 12B) the following year, thus allowing them to still finish the entire series in two years.

Explain the appropriateness of your scheduling pattern:

We schedule courses at times during the day which do not conflict with other courses generally required by our students, *e.g.*, mathematics and physics. We have made scheduling consultations with those departments, as well as nursing and life science. Our lectures for the major courses CHEM 1A, 1B, 12A, and 12B are offered MWF, as are the lectures for CHEM 2; Labs for 1A meet on Wednesday or Thursday afternoons and Friday afternoon during the fall. Labs for CHEM 2 meet on Thursdays. CHEM 1B, 12A, and 12B have labs that meet twice a week, on Monday and Wednesday afternoons. The second section of CHEM 1B lab meets on Monday and Wednesday evenings. For the past several years, enrollment in CHEM 12A has sometimes been sufficiently large to necessitate the addition of a second lab section, meeting on Monday and Wednesday evenings.

CHEM 10 meets in the fall semester on Tuesdays and Thursdays for lecture, with lab on Tuesdays; the Living Room Series version of this course meets on Saturdays for eight weeks. To better accommodate the needs of military personnel at the Defense Language Institute, we have been offering five 8-week sessions a year, two in

each of the fall and spring semesters and one in the summer. In consultation with the Anatomy/Physiology Department, we have placed the fall session of CHEM 30A on Monday and Wednesday evening for lecture and Monday afternoon, Wednesday afternoon and Wednesday evening for the three lab sections. In the spring, CHEM 30A has lectures on Tuesday and Thursday morning and labs on Tuesday and Thursday afternoon. CHEM 30B, which is offered only in the spring, meets on Monday and Wednesday evenings for lecture and Wednesday evening for lab. Although some students have complained about the evening hours, at least as many have expressed appreciation for having the course at a time that permits them to continue full-time daytime employment. Enrollment in this course has not been sufficient to entertain the offering of more than one section.

Describe your faculty and staff in terms of their diversity, past and recent education/ training, and workload.

The chemistry department consists of three full-time instructors and one lab technician who is also a part-time instructor. One instructor is Asian. Two possess doctoral degrees. One provides "East Coast" geographic diversity. The three full-time instructors all carry overloads each semester and periodically rotate their teaching duties so that each gets a chance to teach in different areas. One of the great strengths of the department is the full collegiality that exists among all of its members. Daily interaction and consultation have created a positive work atmosphere and extensive academic cross-fertilization.

Rodney Oka was educated at the local public schools and spent two years at MPC as a student before getting his B.A. degree in chemistry and secondary teaching credentials at UCSB. He later earned his M.S. degree in chemistry at UCSC. He spent nine years teaching high school science with the Santa Cruz City Schools District where he was a Mentor Teacher, a nominee for the Presidential Awards for Excellence in Teaching (nominated by the Superintendent of Schools), and the recipient of the Teacher Fellowship in Analytical Chemistry Program sponsored by the Santa Clara Valley Section of the ACS, Associated Western Universities, Inc., and San Jose State University (Summer 1986). He has previously utilized a one-year sabbatical leave to take chemistry courses at UCSC.

Rodney Oka has been an instructor of chemistry at Monterey Peninsula College since 1986. He has extensive experience in teaching students of diverse backgrounds due to his years of teaching both high school science and community college chemistry. While teaching at Santa Cruz High School he formed an independent studies program at UCSC in which selected high school students were instructed by university graduate students in infrared and nuclear magnetic resonance spectroscopy. While at Monterey Peninsula College he developed and implemented a similar program, bringing local high school students and their teachers to the MPC campus for instruction in infrared spectroscopy. More recently he has been involved in leading seminars in chemistry for 10-12 year old students through the local Lyceum program and the Community Education division of Monterey Peninsula College. Mr. Oka has been on the steering committee of the Central Coastal Area California Science Project, and is currently involved in ACCESS, an NIH program administered by UCSC designed to increase the number of minority students in the medical field. He was voted MPC's Teacher of the Year for 2000-2001.

Mark Bishop has been at MPC since 1975. He has a BA in chemistry from UC Santa Barbara and an MS in chemistry from UC Irvine. He has studied History and Philosophy of Science while on sabbatical at UC Berkeley, and taught History of Science at MPC for two years. He has been on the executive board of the CTA for several years, has been part of the bargaining team for the faculty, has been the president of the Faculty Senate, and has been active on many committees, including hiring committees. Mark has written a textbook called *An Introduction to Chemistry* used for courses such as Chemistry 2 or Chemistry 10. The text was published in 2002 by Benjamin Cummings. It is one of the few complete chemistry textbooks that is available on the Internet.

http://preparatorychemistry.com/Bishop_Chemistry_First.htm

Mark also created computer tutorials and animations to accompany the text.

http://preparatorychemistry.com/Bishop_animations.htm

http://preparatorychemistry.com/Bishop_Tutorials.htm

Mark is acknowledged at MPC as a leader in the application of computers and information technology to instruction, both for his lectures and in the development of both his MPC-based web site and the website for his text.

http://www.mpcfaculty.net/mark_bishop/

<http://preparatorychemistry.com/>

Mark is well-positioned to move into the area of distance learning. He has developed many computer-based tools for his students, and his website includes many of the usual components, such as information sheets and schedules for each of his classes. Each class that Mark teaches has its own web page with links to useful tools.

http://www.mpcfaculty.net/mark_bishop/1A_information.htm

http://www.mpcfaculty.net/mark_bishop/1A_Schedule.htm

http://www.mpcfaculty.net/mark_bishop/Chemistry_1A.htm

When a student takes a chemistry exam in the morning, by that evening, they can find out their score and their overall percentage in the course by going to a web page.

http://www.mpcfaculty.net/mark_bishop/Chem1A_Grades.htm

Mark has created an extensive collection of PowerPoint presentations for each of his lectures, including many computer-generated images to illustrate the key ideas. Most of these PowerPoint slides can be found on the website

http://preparatorychemistry.com/Bishop_PowerPoint.htm

Mark also posts keys for exercises worked in class and sample exams. Many of these are available in the Adobe Acrobat form to make printing easier.

http://www.mpcfaculty.net/mark_bishop/1A_exercise_keys.htm

http://www.mpcfaculty.net/mark_bishop/1A_Exam_keys.htm

Mark helps his students to get organized and encourages them to keep up by posting weekly checklists of the things to do for each week.

http://www.mpcfaculty.net/mark_bishop/1A_checklists.htm

Possible quiz questions for each week are also posted.

http://www.mpcfaculty.net/mark_bishop/quiz.htm

Mark has also created many computer tutorials that run on the web.

http://preparatorychemistry.com/Bishop_Glossaries.htm

http://preparatorychemistry.com/Bishop_Tutorials.htm

On many of Mark's web pages, students find molecular models that can be rotated and sized to help the student develop an understanding of the 3-dimensional character of molecules.

http://preparatorychemistry.com/Bishop_Molecules.htm

Mark is an active participant on the *chemed-L* listserv where chemists and chemistry instructors all over the world exchange ideas and opinions about chemical education. Mark also presented a paper to and coordinated a discussion of it for a CONFICHEM conference titled "Web-Based Applications for Chemical Education: Experiences and Visions." CONFICHEM is organized by the Committee on Computers in Chemical Education (CCCE) of the American Chemical Society Division of Chemical Education. You can see the paper at

http://preparatorychemistry.com/Bishop_conference.htm

Todd Ritsema has a BA in Chemistry from CSU Sonoma, and a PhD in Chemistry from UC Santa Cruz, where he performed his doctoral work in organic synthesis and received recognition as a talented departmental teaching assistant. With Rodney Oka, Todd is working on the Lyceum program. The newest member of the department, Todd is very popular with students because of his enthusiastic and energetic teaching style and his

warm and compassionate personality. Todd teaches CHEM 1B, General Chemistry II, CHEM10, Everyday Chemistry, and CHEM 30A, General Chemistry for Health Sciences.

Ron Rinehart, who is a full-time lab specialist and part-time instructor at MPC, has a BS in Chemistry with honors from Case Western Reserve University, a MA in Chemistry from Columbia University, and a PhD in Biomedical Sciences from the City University of New York (CUNY), where he performed his research in biochemistry at the Mount Sinai School of Medicine. Ron has almost forty years of higher education teaching experience, primarily in biochemistry and organic chemistry, and has also served as an academic administrator. He has taught at the New York College of Podiatric Medicine, St. Joseph's College (New York), Yeshiva University, John Jay College of Criminal Justice of CUNY, and Ramapo College of New Jersey. More recently he taught at CSUMB for one semester. His background suits him perfectly for his assignments to CHEM 30B, Organic and Biological Chemistry for Health Sciences, the second lab section of CHEM 12A, and the summer offering of CHEM 1B. Ron serves as a resource person to the other members of the department; his extensive font of information has led Mark Bishop to refer to him as "a walking chemical encyclopedia." He has expanded the role of his classified Lab Specialist position from that of a lab technician to one of departmental operations manager, playing a substantial role in preparation of the departmental budget, Action Plan, Block Grant requests, and this Program Review as well as involvement in Physical Science Division activities, including the recent building renovation and related ongoing concerns. Ron serves on the Health and Safety Advisory Committee, where he is the current secretary. He has also served as Secretary to MPCEA, CSEA Chapter 245, the classified employees' union for over six years. He has also been one of MPCEA's negotiators, and is one of their representatives on the college Budget Committee. Ron has taken advantage of many staff development workshops at MPC, greatly enhancing his productivity, particularly in computer applications. He has created a website of chemistry resources

http://www.mpcfacy.net/ron_rinehart/default.htm

and course-related websites for

CHEM 30B http://www.mpcfacy.net/ron_rinehart/30B/default.htm ,

CHEM 1B http://www.mpcfacy.net/ron_rinehart/1B/default.htm , and

CHEM 12A http://www.mpcfacy.net/ron_rinehart/12A/default.htm

Describe your faculty and staff's satisfaction with the program including its ability to meet students' needs.

Our staff is quite pleased with our programs and their scope and content, but each member of the department continues to find avenues for both program improvement and professional development. Use of computers by both instructors and students has been incorporated into most of our course offerings. As detailed elsewhere, available student feedback information indicates that the program is effectively meeting the needs of its students.

Discuss the adequacy of your staffing, supplies, equipment, and facilities to meet your program goals. Also discuss any trends/changes in these areas that are pertinent to your program.

Our facilities and much of our equipment is old. At this stage, we think that they are minimally adequate, but they are definitely in need of improvement. Our laboratories are about 40 years old, so they need to be updated in general. Our plumbing leaks, our floors and lab benches are a disgrace, our safety equipment needs to be updated, and the labs need to be brought into the modern world with the addition of computers at each lab station.

Chemical technology is improving and becoming far more sophisticated each day. Instrumentation is getting extremely expensive. Our old NMR instrument, for example, was bought in the early 70's for around \$5000 and is presently out of commission. Now it could cost around \$60,000-\$100,000 to get a decent replacement. Keeping the laboratory current for our students is difficult given the financial condition of the state and college. We also have an on-going concern about the inadequacy of our supply and equipment budgets.

Another concern has been in the recruitment of instructors at the college, both part-time and tenure track. Due to the relatively low pay scale, it has been extremely difficult to fill part-time positions adequately. Sometimes an opening for such a position attracts only 3-5 applicants.

Adequate teaching space is always a concern in the physical science division. We pride ourselves in being able to provide our students a quality education despite our aging facilities, but this gets more difficult every year. It is extremely important that despite the rapidly rising costs of projects for which bond money is already committed, we be careful to set aside enough bond money to improve the facilities for our on-campus academic program. We need to find adequate space for the math department, and we need to provide them with the modern classroom tools that will allow them to use modern teaching techniques. We need to remodel the lecture forum lecture rooms and the physical science building to provide an environment that is more conducive to modern learning. Chemistry labs need to be computerized, equipment needs to be updated, and computer projection equipment needs to be added.

Despite the substantial work done on the heating and ventilation system in the Physical Science building, there is still much that needs to be done. Regular maintenance needs to be scheduled and performed. Ventilation also needs to be improved in PS-206 and PS-205.

Having exerted substantial effort in successfully improving the safety of our chemical storage areas, it is disconcerting that our efforts to upgrade the safety of the instructional labs have not fared nearly as well. **Eight ANSI-compliant combination eyewash/shower units, ordered [and delivered] in the spring of 2002 have yet to be installed.** The old drench units in the labs are not compliant with current safety standards. In addition, the OSHA-mandated position of Chemical Hygiene Officer has not been filled since the retirement of Al Cunningham in 1998, despite longstanding recommendations of the Health and Safety Committee to the VPAS. The delay appears to be primarily due to the unwillingness of the latter to pay a reasonable salary commensurate with the training and responsibilities required of the position.

Explain how external factors (e.g. State budget, local economy, local job market, Fort Ord expansion, changes in technology) are influencing your program or have affected your program in the past, and describe any measures that have been taken to respond to these factors.

The changing technology in science is a cause for concern for us. Although we have done our best to keep up, we are slipping behind steadily due to low equipment budgets. We have implemented new computer technologies, but still need to provide for the use of up-to-date chemical instrumentation whenever the funds become available.

One of the most common reasons that students state when they are forced to drop our courses is the inability to keep up with their courses and still work to support themselves and their families in an expensive area like Monterey.

The English as a second language students represent an additional challenge to teaching of science courses. Enrollment in Chemistry 10 has a significant number of ESL students. Although their writing skills are very good, instruction in the laboratory is a particular challenge.

Our organic chemistry program has been reworked as a five-unit course, with a scheduled problem session and two laboratory sessions per week. In many years, an additional lab section for Chem 12A in the Fall has been added due to our high enrollment.

● Student Information

Student goals and expectations are very well defined in the sciences. We offer all of the chemistry courses necessary to complete the degree requirements for the first two years of all majors that require chemistry. We are also confident that we prepare our students to successfully complete later courses that require chemical knowledge.

Since the instructors are periodically evaluated, students have the opportunity to express their opinions of the quality of instruction. The Chemistry Department instructors have consistently been rated highly by the students through these evaluations. Furthermore, in the past few years chemistry instructors have been among the top candidates for the annual "Best Teacher" award, which was given to Rod Oka for 2000-2001. Faculty are open to suggestions and/or complaints from students, and show flexibility in accommodating students' individual needs, as, for example, when one is unable to take an examination or perform a laboratory experiment at the scheduled time. Another useful method of measuring student satisfaction is to keep in touch with former students after they have transferred to UCSC, CSUMB, SJSU, and other institutions and to ask them whether they have received the preparation that they needed from us. Students who have graduated from MPC and continued their education or career goals have often cited to us their experiences at MPC as the foundation for their success in their field of study.

Students have offered their help in the implementation of our program. Some of our advanced students have helped with the Lyceum programs, both through the preparation of materials for the program and through participation in guiding the youngsters through the activities. During our interview process when we hired our last two chemistry instructor, students have acted as greeters to welcome our candidates/interviewees to our campus and show them our chemistry facilities. The fact that our students have wanted to volunteer their time for such activities demonstrates their satisfaction with our program.

Another indicator of student satisfaction with our program is the low rate of complaints from students. This is most likely due to the fact that our instructors are all patient, highly approachable, and responsive; moreover, we strive to accommodate reasonable requests for rescheduling make-up time for missed examinations or laboratories. Additionally, we have extensive help services available from Academic Support/Supplemental Instruction. Nonetheless, there will inevitably arise the occasional case of dissatisfaction. We follow the standard model for dealing with complaints. First, the student should see the instructor to discuss the concern. If the complaint can not be resolved at this level, or if it is of a personal nature where the student is uncomfortable approaching the instructor, the student may arrange to speak with the Department Chair. If this still does not prove satisfactory, students can then see the Division Chair. Complaints unresolved by this level can be taken to the appropriate administrator.

Despite the fact that chemistry is considered a difficult subject, our drop rates are similar to those in other departments. Many of our students also go on to success at other institutions.

With respect to access, success, and equity we are first of all accessible. We are available outside of class for far more than the office hours we have scheduled. We take a personal interest in the academic success and well-being of our students. We set standards that are rigorous but achievable. We often provide our students with handouts, worksheets, lecture outlines, and lecture objectives to supplement the textbooks and lectures. Our teaching styles recognize and respect individual differences in gender, culture, background, and learning style. We encourage our students to take advantage of the student supportive services, when appropriate, including use of the English Center, the Math Lab and its tutors on duty, and, where appropriate, Counseling Services. Our concern for student success is reflected in our current participation in the Supplemental Instruction (SI) program in Chem1A, 1B, 12A, 12B, and 30A. For those students currently involved, all have shown marked improvement through the semester. We have expanded this to other courses like Chem 1A and 1B. This program expands student access to help beyond the classroom.

We have been involved for several years in the ACCESS program, Baccalaureate Bridge to Biomedical Science. The goals of this program are to increase minority participation in biomedical careers. Students from MPC have actively participated in research at UC Santa Cruz through this program. This is an opportunity for minority students to increase their likelihood of success in upper division biomedical courses. One objective of the

program is to provide guaranteed transfer to the UC system. All aspects of the ACCESS program are available to any interested student.

- **External Relations**

Identify any program or service that is similar to yours within the college and/or in neighboring institutions or agencies and describe the impacts of that similarity.

Cabrillo College and Hartnell College have almost identical programs as ours. However, Cabrillo College is a much larger school; as a result, their classes are much larger. For example, Cabrillo is able to offer Chemistry 2 (MPC Chemistry 2) in the both the day and night. They have four full-time instructors and three part-time instructors. Hartnell College has a smaller department, consisting of only two fulltime instructors and a lab technician. We have had some students from both Cabrillo and Hartnell take some of our courses when our scheduling better suited their particular circumstances.

Describe how your program coordinates with other programs on campus and how successful you feel you are in these efforts.

One of the main purposes of coordination with other departments is to ensure that course offerings required by specific programs are not offered at the same time. We regularly speak with the Life Science and Mathematics instructors in order to ensure that such classes are offered at different times. The involvement of Rod Oka and Todd Ritsema with the ACCESS program puts them in frequent contact with members of the Life Science Division, and Todd Ritsema and Ron Rinehart have consulted with members of the Anatomy/Physiology Department and the School of Nursing and the Dental Hygiene program regarding proposed improvements in the (General, Organic, and Biological) Chemistry for Health Sciences course sequence. For general coordination with other divisions and administrative affairs, we rely heavily on the services of the Physical Science Division Office.

Describe and evaluate the support that your program receives from other college programs or service areas, such as Instructional Technology (IT), Management of Information Services (MIS), Human Resources (H.R.), Student Services, Plant Services, Events and Facilities Office, Public Information Office, Fiscal Services, and others.

We have extensive interaction with and support from other departments in the Physical Science Division, including the Division Office, Mathematics, and Physics/Astronomy. We coordinate the content of such courses as CHEM 30A and 30B to the needs of the nursing and dental assisting programs. We work cooperatively with the Counseling and Supportive Services Divisions and the Academic Support Center, and have referred students to the English Center. Several of us have participated in a number of Staff Development Workshops offered by other areas of the college. We make substantial use of the services of the Library, the Printshop, Information Services/Network Support, and the Audio/Visual department. We have served as consultants to other departments which handle chemicals, notably the Art department. We also rely heavily on Administrative Services, in particular Fiscal Services, Facilities, and Human Resources. It is our feeling that, while each of these last three areas attempts to do its best with the resources available to it, they are all presently too understaffed, and possibly underfunded, to meet their campus-wide obligations efficiently.

Describe your program's involvement with the community at large.

We have been involved with the community in several ways. Rod Oka was a co-chair of the Science Articulation Committee along with Steve Clark of Monterey High School. He was also on the steering committee of the Central Coastal Area Science Project which was working with UCSC in helping K-12 teachers improve their science classes. We have visited the chemistry instructors at Carmel High School and Monterey High School. We have held a special studies unit in organic chemistry, a 3-hour workshop for students and teachers from CHS, PGHS, and MHS. We also led a lab activity for visiting junior high school students at MPC.

We have spoken as guest lecturers at a chemistry class at Mount Madonna School. We have run several Chemistry for Young Children seminars through MPC community education and through Lyceum of Monterey. The 20/30 Club and Kiwanis Club have joined us in this effort to educate the young children through their generous donations for supplies. Many of our current and former students have helped with the Lyceum programs; one former student, Frank Rivera, has also given several chemical demonstration shows to local elementary schools based on the chemistry he has learned from our department.

We serve the community at large as a resource for chemical information. For example, several businesses have consulted us for advice concerning their products, handling of hazardous materials, and water treatment, among other things. Community members sometimes call upon us for advice concerning the chemistry in their everyday lives. For example, a recent caller, suffering from sinus problems, wanted to know what happens when vinegar is placed on baking soda that was stuck in his rug. A number of community members have asked the department's advice on technical props for stage presentations. We are often consulted with regard to science fair entries throughout the community.

Two of our faculty members also teach part-time and summers at Cabrillo College. The additional insights and contacts they have made there have proven useful. We have also cooperated with CSUMB. In the past, we made laboratory space available to two of their researchers while their own lab was unusable during the installation of new fume hoods.

One member of the department is a permanent member of the MPC Health and Safety Advisory Committee. Department members have served in the past on many other committees at MPC. Two are active participants on the Chemed-L and ConfChem listserv forums.

PART III: SUMMARY

In reviewing your data and responses, what do you see as your program's greatest strengths? Greatest weaknesses?

We have dedicated instructors committed to quality education. We have been actively updating our program, adding many computer tools to our classes. We make a greater than normal attempt to keep in touch with our fellow instructors across the nation in order to keep up with the latest ideas on how chemistry should be taught. One way that we do this is through the chemed-L listserv that makes email conversations possible among chemistry instructors anywhere in the world. We are limited in what we can do by our lack of modern facilities and equipment.

What do you see as your program's greatest challenges during the next five years? Greatest opportunities?

The bond passed by our local voters to improve the educational program at MPC provides us with our greatest opportunities for modernization of our facilities and equipment, but because the money is rapidly being spent in nonacademic areas, our greatest concern is that there won't be enough money remaining to adequately cover our needs. It seems increasingly possible that MPC will end up with a state-of-the-art football stadium, student services building, and administration building but inadequate facilities and equipment for teaching math and science.

PART IV: RECOMMENDATIONS/GOALS

Based on your critical evaluation of the items studied in Part I and II, please provide recommendations for the development, modification, and/or improvement of your program.

Identify the goals that were identified in the last program review and describe whether they were attained or not. If not, why not?

Equipment acquired and improvements made since 2000:

- Four new balances for the organic chemistry lab
- Infrared spectrophotometer
- Ice-making machine
- Flammable storage refrigerator/freezer
- Cabinets for storage of flammables and corrosives
- Active ventilation of the flammables storage area
- Secondary containments for storage of all chemicals
- Three new fan units for lab fume hoods
- New chairs for PS-201
- Sufficient stools for all three labs

Acquired but not yet installed:

- Eyewash/safety shower units for all labs

Not yet acquired/done:

- Gas chromatograph
- Improvements to LF-101
- Tables for PS-201

Specify clearly in this section your program goals for the next five years, your plans to achieve them, the responsible person, and a timeline for completion.

We think that it is extremely important to our students that the entire chemistry faculty be responsible for doing everything we can to convince the decision-makers on campus that math and science are important areas of study that deserve to be more actively supported by the college. We will try to accomplish this difficult task by actively lobbying the people directly involved in making decisions on how the bond money will be spent. If we get monetary support, we will work hard to plan improvements to our facilities and equipment that the bond money will make possible.

Prioritize your goals and plans, listing the highest priority first.

1. Demand the installation of necessary safety equipment in the labs.
2. Continue to do everything we can to provide our students with a high quality educational experience.
3. Do everything we can to modernize our facilities and equipment.
4. Continue to update our teaching skills.
5. Continue to keep up with trends in chemical education.

Prioritize, within and between categories, requests for faculty, staff, supplies, equipment, and facilities. Describe how those requests are linked to your prioritized program goals and plans.

1. Completely remodeled physical science building with modern electrical components, plumbing, and heat.
2. Add computers to each laboratory station in our labs.
3. Increase our supply budget.
4. Periodically provide instructors with up-to-date computers and software.
5. Fill the position of Chemical Hygiene Officer.

Include related activities in annual Action Plans or attach Annual Action Plan for next year if you have it prepared.

The 2006-2007 Chemistry Department Action Plan is available {ChemDeptActionPlan06_07.rtf}

PART V – ANNUAL REPORTS & ACTION PLANS

By April 1st of each succeeding year, prepare an annual update report which identifies the program's success in implementing its plans to achieve the identified goals, any new or modified goals and plans, and any deleted goals and plans. The format for the Annual Report is included as an addendum to this document. The annual report should be used to generate the program's Annual Action Plans, which in turn, will be used for inclusion in college-wide planning, development of long- and short-term goals and objectives, and the proposed budget. **Attach the Annual Action Plan to the Annual Report.**

See pp 19-22.

PROGRAM REVIEW – ANNUAL REPORT

Date:	11/1/06
Program Area:	<i>Chemistry Department, Physical Science Division</i>
Prepared by:	Ronald W. Rinehart, PhD

Address completely each of the following topics. Use extra pages as needed. Attach your Action Plan reflecting program/division goals, objectives, and priorities.

1. Please identify all progress towards your goals as stated in the last formal Program Review and/or previous annual report.

From the 2006-2007 Chemistry Department Action Plan and/or Budget Request forms:

Goal	Progress
Increase the supply budget	done
Restore equipment repair budget	done
Acquire a modern gas chromatograph.	still trying
New classroom furniture and window blinds for PS-201.	only chairs received so far
Create an ongoing department budget for faculty and staff training and development, including tuition, registration fees, and travel expenses.	no progress
Replace deteriorating, outdated chemistry videos used for CHEM 10	done
Acquire a portable fume hood for lecture demos.	priority downgraded
Refurbish LF-101	done
Increase local marketing of the Chemistry Department, both as part of a College-wide effort and as an individual departmental initiative, including increased outreach to local middle and high schools	no progress
Carry out the items on the latest Physical Science Division Maintenance Needs List.	minimal progress
Restoration of the departmental overtime budget for lab technician staffing associated with the continued offering of the successful CHEM 10/10L Living Room Series	no progress

2. Please identify any changes in plans to meet any of the stated goals.

We plan to increase our efforts to convince the decision-makers on campus that the math and science areas are important and worthy of support.

3. Please identify any new challenges and/or opportunities that have emerged since the last report.

The passage of the MPC bond has provided many new opportunities, but it has been a significant challenge to get the college to commit to using the money for on-campus academic programs.

4. Please identify any revisions to your goals or plans due to new challenges and/or opportunities that have emerged since the last report or ineffective previous plans.

We plan to work hard to convince the decision-makers on campus that the math and science areas are important and worthy of support.

Please indicate how each activity will help MPC reach one/more of its Institutional Long Term Goals.

Physical Science Division

0505 CHEMISTRY Department 2006 - 2007 ACTION PLAN

Description of Activity/Plan	Meets Goal(s)	Item(s) Requested	Total Amount Requested
Increase the supply budget for the Chemistry Department in order to permit badly needed and long-overdue equipment repairs. Beginning in FY 2002-03, the previously existing departmental equipment repair budget 0100-0030-0-1900-0505-5600-000-00-5630 of \$1050.00 disappeared and has not been restored. Earlier this year we submitted an "Increase Existing Budget Line" Form with this year's budget package, with the detailed rationale supporting the request. This is an ongoing expense.	Education Technology Image	Increase budget 0505-4300-000-00-4312 (Chemicals and nonconsumable supplies) by \$1050 [ongoing expense]	\$1,050
		CATEGORY TOTAL	\$1,050
Acquire a modern gas chromatograph. This is necessary for improving the lab curriculum in organic chemistry	Education Technology Image	Gas chromatograph Recording chart	
		CATEGORY TOTAL	\$12,000
New classroom furniture and window blinds for PS-201. The current desks are so small and uncomfortable that they seem like surplus from a junior high school. This is an issue of providing a setting conducive to learning as well as an issue of image.	Education Technology Image	New desks and chairs for students [since PS-201 is used for Physics and Math classes as well as Chemistry, this should be a Division-wide request]	\$18,000
		CATEGORY TOTAL	\$18,000
Acquire the portable fume hood previously requested from Instructional Block Grant. In addition to its uses in classroom demonstrations, this item also would support the departmental marketing/outreach initiative listed elsewhere.	Education Technology Image	portable fume hood	\$3,500
		CATEGORY TOTAL	\$3,500
Create an ongoing department budget for faculty and staff training and development, including tuition, registration fees, and travel expenses. The cuts by the state in Staff Development funds should not be allowed to prevent this important item from being funded.	Education Leadership Image		
		CATEGORY TOTAL	\$5,000
Replace deteriorating, outdated chemistry videos used for CHEM 10 LRS and other classes with up to date presentations, possibly in DVD format.	Education Technology Image	New chemistry videos	\$3,000

		CATEGORY TOTAL	\$3,000
PAGE SUBTOTAL		PAGE SUBTOTAL	\$42,550
0505 CHEMISTRY	Page 2 of 2	0505 CHEMISTRY	Page 2 of 2
Refurbish LF-101 to bring its instructional capability up to a level befitting the heavy use it receives from our faculty and students. Specifically, the following deficiencies need to be addressed: 1) Nonfunctioning controls for lighting, sound, and slides 2) Nonfunctioning light dimmers 3) Burned-out or nonfunctioning lighting 4) Unsafe electrical cords taped to floor or running across room 5) Accumulated leftover junk and trash from various classes 6) Nonfunctioning thermostat	Education Technology Image Bond	Refurbish LF-101 with state-of-the-art sound, lighting, and multi-media capabilities, including installation	\$90,000 CATEGORY TOTAL \$90,000
Increase local marketing of the Chemistry Department, both as part of a College-wide effort and as an individual departmental initiative, including increased outreach to local middle and high schools, particularly utilizing participation in National Chemistry Week. The College should emphasize the high academic quality of MPC's Physical Sciences Division, including the Chemistry Department.	Education Technology Image Partnerships	brochures: preparation and printing outreach efforts: supplies outreach efforts: travel outreach efforts: faculty compensation outreach efforts: classified overtime	\$1,000 \$500 \$500 tbd tbd CATEGORY TOTAL \$2,000
Carry out the items on the latest Physical Science Division Maintenance Needs List.	Education Image		CATEGORY TOTAL \$12,000
Explore the possibility of adding additional courses offered by the Chemistry Department to meet the needs of the Public Safety Officer Academy in such area as Fire Science, Forensic Chemistry, Drug Identification, and other areas in which chemistry is applicable, such as water treatment, environmental chemistry, etc. The potential for increasing FTES is obvious and substantial.	Education Technology Image Fort Ord Partnerships	None for FY 2006/07 [exploratory phase]. Subsequent implementation would require additional staffing and supplies	\$0 CATEGORY TOTAL \$0
Restoration of the departmental overtime budget for lab technician staffing associated with the continued offering of the successful CHEM 10/10L Living Room Series. The course is currently given five times a year, and is almost always oversubscribed.	Education Salary	Increase to the following budget lines as indicated 0505-2300-000-00-2303 0505-3320-000-00-2303 0505-3340-000-00-2303 0505-3520-000-00-2303 0505-3620-000-00-2303	\$8,250 \$530 \$120 \$10 \$225 CATEGORY TOTAL \$9,135
PAGE SUBTOTAL		PAGE SUBTOTAL	\$113,135
GRAND TOTAL		GRAND TOTAL	\$155,685