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| **Discipline: Chemistry** | **Date:** **9/28/2015** |
| **Instructional Discipline Reviewed (Each discipline is required to complete a Program Review.)** |  |

**DEFINITION**

Program Review and Planning is the means by which faculty, staff, and/or administrators complete a self-evaluation of an academic discipline, program, or service.  The self-evaluation includes an analysis of both quantitative and qualitative data on how the academic discipline, program, or service is supporting the mission and strategic planning of Palomar College in meeting the educational and career interests of students.  Through the review of and reflection on key program elements, such as program data and student learning outcomes, Program Review and Planning defines the curriculum changes, staffing levels, activities, and/or strategies necessary to continue to improve the academic discipline, program, or service in support of student success.  The Program Review and Planning process also ensures short-term and long-term planning and identification of the resources necessary to implement identified goals and priorities.

**Purpose of Program Review and Planning:**

Program Review and Planning for Years 2 and 3 provides a “check-in” on the Year 1 Comprehensive PRP. The PRP documents the vision and planning for a program or discipline. It also provides information for the development of the College’s Strategic Plan goals and annual objectives, documents overarching themes/issues occurring across academic programs and instruction, identifies the needs for resource allocations, and identifies department needs for developing the annual Staffing Plan update.

[**Palomar College Mission**](http://www.palomar.edu/about/goals.aspx)

Our mission is to provide an engaging teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. As a comprehensive community college, we support and encourage students who are pursuing transfer-readiness, general education, basic skills, career and technical training, aesthetic and cultural enrichment, and lifelong education. We are committed to helping our students achieve the learning outcomes necessary to contribute as individuals and global citizens living responsibly, effectively, and creatively in an interdependent and ever-changing world.

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| **List everyone who participated in completing this Program Review and Planning Document.**  **Natarajan Geetha, Heriberto Rivera & Tsung Lee** |

**STEP I. Evaluation of Program & SLOAC Data.** In this section, examine and analyze updated program data, the results of SLOACs, and other factors that could influence your program/discipline’s plans for the current year. Consider trends and any changes in the data as they relate to this year’s analysis.

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| 1. **Analysis of Program Data. Review and comment on any significant changes or noted concerns since last year’s PRP.**   **(For enrollment, WSCH, & FTEF data, use Fall term data only).**   * + [Enrollment, Enrollment Load, WSCH, and FTEF](https://sharepoint2.palomar.edu/sites/IRPA/SitePages/Productivity%20Metric%20Summary.aspx)   + [Course Success and Retention Rates](https://sharepoint2.palomar.edu/sites/IRPA/SitePages/Success%20and%20Retention.aspx)   + [Degrees and Certifications](https://sharepoint2.palomar.edu/sites/IRPA/SitePages/Degrees%20and%20Certifications.aspx)   **Census Load %** are: 82.04 % for college, 91.02 % for MNHS Division, and 93.99% for Chemistry Department- Our department % is close to the division’s and significantly higher than the college’s- most of our classes fill up quickly-  **WSCH/FTEF** are: 439.78 collegewide, 476.93 MNHS Division and 499.04 for Chemistry Department- Here again our department’s number is higher than the division’s and significantly higher than that of the college overall.  **Retention Rates** are : 70.0% for college, 60.0% for MNHS Division and 72.7% for Chemistry Department- with a department in need of full-time faculty for a long time, we are doing our best ( on par with the college) to attract and retain students in a subject perceived as challenging .  We have no challenges in filling our classes; the big challenge in offering more classes is and always has been finding qualified instructors who are commited to teaching and have the students’ best interest in mind. We lose dedicated instructors every semester to Mira Costa and Miramar Colleges, both of which offer a significantly higher pay rate/hour.  **Degrees and Certifications:**  Our department has not awarded any degrees or certificates in the last 4 years since most of our students are interested in transferring to 4-year schools and/or take our classes as prerequisites for their degrees in the health-care-related fields. Maybe offering the low enrollment Chem 210 Analytical Chemistry course, a requirement for the AA in Chemistry, would help students earn AA degree in Chemistry. |

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| 1. **SLOACs. Using the comprehensive SLOAC reports and faculty discussions as a guide, summarize your planned SLOAC activities for courses and programs for the current academic year. Link to SLOAC resources:** <http://www2.palomar.edu/pages/sloresources/programreview/>   CHEM10: For the first time in the history of our department, we will have a full-time instructor revamp and teach the course and assess the SLO on its next scheduled timeline.  Current Spring 2015assessment showed 100% of the class was able to correctly answer standardized questions embedded in exams.  CHEM 100: Spring 2015 assessment showed 69% of 350 students ( from all sections) scored 70% or better and achieved the SLO- will continue to assess this SLO.  CHEM 104: Spring 2015 assessment showed 98% of 65 students successfully met the SLO (of understanding Periodic table). This number is unusual for Chemistry. We plan on obtaining data which would address different and specific aspects of the SLO with a new full-time instructor.  CHEM 105: needs assessment –has to be assessed in Spring of 2016.  CHEM 110: In Spring 2015, the SLO team put together 3 multiple choice questions which would address “Nomenclature SLO” and administered the assessment during a regularly scheduled final exam across all sections of CHEM 110. The average score was 81.9% for all 3 questions, which was obtained by a total of 228 students who completed the exam. In Spring 2017, we plan on re-examining question 1, which was answered incorrectly by a large number of students.  CHEM 110L: The success rates were 52% and 60% for SLO-1 and 29% and 67% for SLO -2. Hence we plan on rewriting the SLO-1 and move this experiment to a later time in the semester and/or choose a different lab to assess for SLO-2. Also the lecture and the lab will hopefully be combined into one class.  CHEM 115: Due for assessment in Spring of 2016. We need to strengthen student understanding of bases compared to acids before we assess this SLO.  CHEM 115L: 62% of the students assessed from one section of Spring 2015 earned 70% or higher on e SLO. We plan to assess another SLO on chemical lab technique in Spring /Fall 2017, may be from all sections.  CHEM 205: Needs to be assessment in Sping 2016- coursed is offered only once a year.  CHEM 210: Has not been offered in 7 years or so; hence no assessment was possible.  CHEM 220: 94% of 33 students (only one section offered) scored 70% or higher on one SLO on the first scheduled exam in Fall 2015. Plan to assess students at the end of the semester to address different aspects of the SLO.  CHEM 221: In Spring 2015 79% of the 19 students who took the American Chemical Society Exam scored in the 60th percentile or better (the SLO requirement is 55% or higher) compared to students nationwide; hence we have successfully achieved this SLO.  Overall, the SLO assessment looks encouraging for the department. We hope to develop and assess more SLOs in future especially for the courses that have not been assessed at all for lack of full time faculty.  Even though everyone agrees with the value of assessment in program review and improvement, having more full-time faculty on board would make the entire process of creating, assessing, and analyzing the SLOs a lot more valid and efficient. |
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| 1. **Other Relevant Data and Information.** 2. **Review other data and/or information that you included in last year’s assessment of your program (see Step II.C). (Examples of other data and factors include, but are not limited to: external accreditation requirements, State and Federal legislation, four-year institution directions, technology, equipment, budget, professional development opportunities). Describe other data and/or information that you have considered as part of the assessment of your program. If there is additional information you are using to assess your program this year, also describe that information here.**      1. **Given this updated information, how are your current and future students impacted by your program and planning activities? Note: Analysis of data is based on both quantitative (e.g., numbers, rates, estimates, results from classroom surveys) and qualitative (e.g., advisory group minutes, observations, changes in legislation, focus groups, expert opinion) information.** |

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| 1. **Labor Market Data. For Career/Technical disciplines only, review and comment on any significant changes or concerns since last year’s PRP. (See Step II.D). This data is be found on the CA Employment Development website at** [**http://www.labormarketinfo.edd.ca.gov/**](http://www.labormarketinfo.edd.ca.gov/)**. Go here and search on Labor Market Information for Educators and Trainers (http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=112). Click on summary data profile on right side of page to search by occupation. (Check other reliable industry or government sources on Labor Market Data websites that support findings and are relevant to Region Ten – San Diego/Imperial Counties. Include job projections and trends that may influence major curriculum revisions.)** |

**STEP II. Progress on Previous Year’s Goals and Plans** (See ”Step III - Updated Goals and Plans” in your completed 2014-15 PRP at <http://www.palomar.edu/irp/PRPCollection.htm>).

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| **Discuss/Summarize progress on last year’s goals. Include**   1. **the impact on resources allocated and utilized;** 2. **any new developments or concerns that are affecting the program;** 3. **any new goals for the program; and** 4. **other information you would like to share.**   a) Impact on Resources allocated: All the equipment funded by the last year’s allocation of funds are in full use in all the laboratories, resulting in minimized sharing, shortened waiting time, and improved individual time at the equipment, thus enhancing independent learning.  Routine maintenance funding is helping all the labs run with basic needs met.  Our new ADA (Abby Corona) is really an asset to our department.  General Chemistry entrance exam for CHEM 110 has yet to be implemented; we are exploring the various options available.  b) New Developments/Concerns:  Our department relies on part-time faculty heavily, as evident from the data below:  Part-time/Total FTEF: 68.15% collegewide, 61.15% MNHS Division, and 76.51% Chemistry Department  We have higher **WSCH/FTEF and higher Census load % yet have higher Part-time %.**  We have no challenges in filling our classes, as is evident from the **higher Census load**. The big challenge of our department is and always has been finding qualified part-time instructors who are commited to teaching and have the students’ best interest in mind. We lose dedicated instructors to Mira Costa and Miramar Colleges, both of which pay more every semester. Mira Costa pays almost twice/hr for part-time faculty and San Diego Community Colleges pay better health benefits to part-time faculty. A highly disproportionate amount of time goes towards recruiting suitable part-time instructors only to lose the best to other colleges. In addition, an even larger amount of energy is spent evaluating the ever increasing number of part-time faculty and in eliminating the ones who have been hired in the past who do a disservice to the students. If we want quality programs for our students, we need to recruit and retain excellent full-time/part-time faculty.  c) New as well as old goals:  1. Need to hire 4 full-time faculty: one for a GOB Biochemistry and 3 for general chemistry/analytical chemistry so that we can maintain our standards with existing courses and expand our offering.  2. Integrate CHEM110 lecture and CHEM110 Lab into one course and work toward implementing the American Chemical Society’s Placement Exam for CHEM 110 to promote retention and success and efficient enrollment. Current situation creates too much demand for lecture and vacant spots in the lab and unpredictable situations for course planning.  3. Reduce the lab hours from 6 to 3 for CHEM 104 to be consistent with those at other community colleges in the state and nationwide and to save the resources and increase enrollment. |

**STEP III. Resources Requested for FY 2014-15:** Now that you have completed Steps I and II, Step III requires you to identify all additional resources you will need to achieve goals, plans and strategies for Step II. First, identify all resource needs in each budget category. You may have up to five (5) requests per budget category. Provide a meaningful rationale for each request and how it links to your Goals, Plans, and Strategies. Resource requests to simply replace budget cuts from previous years will not be considered. Negotiated items should not be included in any resources requested. PLEASE NOTE THAT ALL FUNDING ALLOCATED BY IPC IS ONE-TIME AND MUST BE SPENT WITHIN THE DEFINED TIMELINE. Requests that support more than one discipline should be included on the “Academic Department Resource Requests” PRP form only. Click here for examples of [*Budget Category*](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.pdf)*.*

Prioritize within each category and then prioritize across categories in Step IV.

\*Refer to Strategic Plan 2016 Objectives at http://www.palomar.edu/strategicplanning/StrategicPlan2016-Year2.pdf

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| **Discipline: Chemistry** | **Date: 9/28/2015** |

ALL FUNDING ALLOCATED BY IPC IS ONE-TIME AND MUST BE SPENT WITHIN THE DEFINED TIMELINE. Requests that support more than one discipline should be included on the “Academic Department Resource Requests” PRP form only. Click here for examples of [*Budget Category*](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.pdf)*.*

Prioritize within each category and then prioritize across categories in Step IV.

\*Refer to Strategic Plan 2016 Objectives at http://www.palomar.edu/strategicplanning/StrategicPlan2016-Year2.pdf

**Budget category a. Equipment (acct 600010 and per unit cost is >$500). Enter requests on lines below. Click here for examples of equipment:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
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| **a1.** | **Vacuum pumps x 2** | **600010** | **SLO** | **SP 1 & 4** | **The house vacuum is not strong enough to make our rotary evaporators very effective. As such, it is important to teach our students how to use the rotary evaporators effectively. This knowledge and skill will help our Chem220/221 students pursue further research opportunities or look for employment.** | **Cost + S&H**  **(1450 +150) ea**  **X 2 = $ 3200** |
| **a2.** | **Melting point apparatus x 3** | **600010** | **SLO** | **SP 1 & 4** | **These are necessary to keep performing the experiments that are a required part of our curriculum for Chem 220/221. Within the last couple of years, we have lost 1/3 of our modern instruments. It is essential that these are replaced in order for Chem 220/221 students to complete the necessary experiments within a reasonable amount of time.** | **Cost + S&H**  **(2725 +300) ea**  **X 3 = $ 9075** |
| **a3.** | **High power ultrasonic cleaner** | **600010** | **SLO** | **SP 1 & 4** | **About 100 students from Chem 220/Chem221/Chem105 classes and the chemistry stockroom need this for safely removing lids of jammed glassware to avoid safety hazards.** | **Cost + S&H**  **(774 +80) ea =**  **$ 854** |
| **a4.** | **HPLC ( High Pressure Liquid Chromatography)** | **600010** | **SLO** | **SP 1 & 4** | **HPLC is a common tool used by chemists in both industry and academia and at all education levels (AS, BS, MS, PhD). Thus, being able to train our students on this instrument would provide them with a skill set that is marketable right out of Palomar College.** | **Cost + S&H**  **(32000 +3000) ea =$ 35000** |
| **a5** | **Explosion proof refrigerator** | **600010** | **SLO** | **SP 1 & 4** | **We need to replace the 20-year old refrigerator that is currently housing all the organic reagents that are flammable and prone to explode without cooling.** | **Cost + S&H**  **(1603 +180) ea = $1783** |

**Budget category b. Technology (acct 600010, examples: computers, data projectors, document readers). Enter requests on lines below. Click here for examples of technology:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **b1.** |  |  |  |  |  |  |
| **b2.** |  | **600010** |  |  |  |  |

**Budget category c. Supplies (acct 400010 and per unit cost is <$500). Enter requests on lines below. Click here for examples of supplies:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **C1.** | **Burets x 50** | **400010** | **SLO** | **SP 1 & 4** | **We no longer can charge students to replace any glassware broken. 900 Students from Chem104, Chem110 and Chem115 share 80 burets oveall and atleast 5-6 break each semester.** | **Cost + S&H**  **(178 +20) ea**  **X 50 = $ 9900** |
| **C2.** | **Budget increase to purchase staple reagents** | **400010** | **SLO** | **SP 1 & 4** | **Chemical reagents are a necessity in every lab class for every course we offer each semester. As the number of courses we offer increase, so is the need for increased reagent budget. Added a 2nd section of Chem 221 (organic lab) for spring which costs about $2500/section** | **$4,500** |

**Budget category d. Operating Expenses (acct 500010; examples: printing, maintenance agreements, software license) Enter requests on lines below. Click here for examples of operating expense:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already partially funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **D1** | **CHEMDRAW x 7** | **600010** | **SLO** | **SP 1 & 4** | **This software has become part of every organic chemist’s tool set and allows the user to draw molecules, reactions, and mechanisms on their computers and transfer them over to other documents such as homework and reports. Every organic chemistry lab and vast majority of chemical companies use this software. This provides a great incentive to have our students become familiar with this program and could be used indefinitely once purchased without any need for upgrade.** | **Cost + S&H**  **(500 +50) ea**  **X 7 = $3850** |
| **D2.** | **Deionized water** | **500010** | **SLO** | **SP 1 & 4** | **Deionized water maintenance for the entire NS building is met by this funding. This includes resin change once a month and parts.** | **$17,000** |
| **D3.** | **Maintenance Agreement for 2 Perkin-elmer FTIR instruments** | **500010** | **SLO** | **SP 1 & 4** | **These Fourier Transform Infra Red instruments used by organic chemistry laboratory classes need periodic maintenance to run efficiently.** | **$12,100** |
| **D4.** | **Airgas rental agreement** | **500010** | **SLO** | **SP 1 & 4** | **Gas cylinder rental agreement- rental and usage of Helium, argon, nitrogen, air, acetylene, carbon dioxide and hydrogen gases needed to run instruments like gas chromatography, mass spectrometer instruments used by organic chemistry laboratory classes.** | **$4,000** |
| **D5.** | **Printing costs** | **500010** | **SLO** | **SP 1 & 4** | **As we increase the number of students we serve through increased class offerings of 44%, we need to increase the printing budget for each class.** | **$2,000** |
| **D6.** | **Replace the windows to the ones that open in faculty offices and labs** | **500010** | **Overall need** |  | **With the A/C and heating in the building not working properly 90% of the time, if the windows open, we can at least adjust the temperatures in offices and the chemistry labs to save the faculty and students from extreme temperature swings that currently occur which make it impossible to work. We have taken our request to the Facilities Review Committee but would like it considered here as well.** | **$ ~ 20,000** |

**Budget category e. Travel Expenses for Faculty (acct 500010: faculty travel only)**

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include benefits if applicable)** |
| --- | --- | --- | --- | --- | --- | --- |
| **e1.** |  | **500010** |  |  |  |  |
| **e2.** |  | **500010** |  |  |  |  |
| **e3.** |  | **500010** |  |  |  |  |
| **e4.** |  | **500010** |  |  |  |  |
| **e5.** |  | **500010** |  |  |  |  |

**Budget category f. Short-term hourly (temporary and student worker). Enter requests on lines below.**

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include benefits if applicable)** |
| --- | --- | --- | --- | --- | --- | --- |
| **f1.** | **Funding for student workers for the laboratory support** | **230010** | **SLO** | **SP 1 & 4** | **Number of chemistry laboratory classes offered has been increased from 50/year to 72/year in the last 3 years. This 44% increase in classes requires more student workers to support those laboratories. However, our budget has not increased even 1% in the last 3 years to support these classes. This coupled with the hourly rate increase mandated by the State of California demands increased funding.**  **Cost breakdown:**  **(2 students/hr) x (13 hrs/day) = 26 students/day**  **104 students for M-F (4days) + 6 students on Friday= 110 students/week** which results in  **1760 students /16 week semester \* $11.00/student = $19,360/sem**  **The summer cost is 2 students/hr \*8 hrs/day \* 4 day/week \* 6 weeks/summer = 384 students/summer.**  **384 students/summer \* $11.00/student = $4,224/summer**  The original funding granted for student workers was $17,634/year.  In Fall 2015, we spent $16,457.50  During the month of July 2015, we received and additional $13,372 from the MNHS division, without which we would have run out for Spring 16. | **$25,000**  **(2 students/hr)**  From Monday ~ Thursday, Chem labs are open from 8:00 am ~ 9:00 pm. During day we have 3~5 parallel lab sections & during night we have 2~3 parallel lab sections. We usually budget two students per hour. |
| **f2.** |  | **230010** |  |  |  |  |
| **f3.** |  | **230010** |  |  |  |  |
| **f4.** |  | **230010** |  |  |  |  |
| **f5.** |  | **230010** |  |  |  |  |

**STEP IV. Prioritize Resource Requests.** Now that you have completed Step III, prioritize all of your resource requests as one group; not prioritized within each budget category. This means you could have your #1 priority in technology, your #2 priority in short-term hourly, and your #3 priority in equipment, etc. If you actually have five (5) requests in each of the six (6) budget categories, you would end up with 30 prioritized requests**. IPC will not consider requests that are not prioritized.** Note that all funding allocated by IPC is one-time and must be spent within the defined timeline.

| **Priority Number for all Resource Requests in Step III** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, benefits, etc.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **1.** | **A1.**  **Vacuum pumps x 2** | **600010** | **SLO** | **SP 1 & 4** | **The house vacuum is not strong enough to make our rotary evaporators very effective. As such, it is important to teach our students how to use the rotary evaporators effectively. This knowledge and skill will help our Chem220/221 students pursue further research opportunities or look for employment.** | **Cost + S&H**  **Each (1450 +150) X2 = $3200** |
| **2.** | **D1 CHEMDRAW x 7** | **600010** | **SLO** | **SP 1 & 4** | **This software has become part of every organic chemist’s tool set and allows the user to draw molecules, reactions, and mechanisms on their computers and transfer them over to other documents such as homework and reports. Every organic chemistry lab and vast majority of chemical companies use this software. This provides a great incentive to have our students become familiar with this program and could be used indefinitely once purchased without any need for upgrade.** | **Cost + S&H**  **Each (500 +50) X 7 = $3850** |
| **3.** | **C1**  **Burets x 50** | **400010** | **SLO** | **SP 1 & 4** | **We no longer can charge students to replace any glassware broken. 900 Students from Chem104, Chem110 and Chem115 share 80 burets oveall and atleast 5-6 break each semester.** | **Cost + S&H**  **Each (178 +20) X 50 = $9900** |
| **4.** | **C2**  **Budget increase to purchase staple reagents** | **400010** | **SLO** | **SP 1 & 4** | **Chemical reagents are a necessity in every lab class for every course we offer each semester. As the number of courses we offer increase, so is the need for increased reagent budget. Added a 2nd section of Chem 221 (organic lab) for spring which costs about $2500/section** | **$4,500** |
| **5.** | **A2**  **Melting point apparatus x 3** | **600010** | **SLO** | **SP 1 & 4** | **These are necessary to keep performing the experiments that are a required part of our curriculum for Chem 220/221. Within the last couple of years, we have lost 1/3 of our modern instruments. It is essential that these are replaced in order for Chem 220/221 students to complete the necessary experiments within a reasonable amount of time.** | **Cost + S&H**  **Each (2725 +300) X3 = $9075** |
| **6.** | **A3**  **High power ultrasonic cleaner** | **600010** | **SLO** | **SP 1 & 4** | **About 100 students from Chem 220/Chem221/Chem105 classes and the chemistry stockroom need this for safely removing lids of jammed glassware to avoid safety hazards.** | **Cost + S&H**  **Each (774 +80) = $854** |
| **9.** | **F1**  **Funding for student workers for the laboratory support** | **230010** | **SLO** | **SP 1 & 4** | **Number of chemistry laboratory classes offered has been increased from 50/year to 72/year in the last 3 years. This 44% increase in classes requires more student workers to support those laboratories. However, our budget has not increased even 1% in the last 3 years to support these classes. This coupled with the hourly rate increase mandated by the State of California demands increased funding.**  **Cost breakdown:**  **(2 students/hr) x (13 hrs/day) = 26 students/day**  **104 students for M-F (4days) + 6 students on Friday= 110 students/week** which results in  **1760 students /16 week semester \* $11.00/student = $19,360/sem**  **The summer cost is 2 students/hr \*8 hrs/day \* 4 day/week \* 6 weeks/summer = 384 students/summer.**  **384 students/summer \* $11.00/student = $4,224/summer**  The original funding granted for student workers was $17,634/year.  In Fall 2015, we spent $16,457.50  During the month of July 2015, we received and additional $13,372 from the MNHS division, without which we would have run out for Spring 16. | **$25,000**  **(2students/hr)**  From Monday ~ Thursday, Chem labs are open from 8:00 am ~ 9:00 pm. During day we have 3~5 parallel lab sections & during night we have 2~3 parallel lab sections. We usually budget two students per hour. |
| **10.** | **D2**  **Deionized water** | **500010** | **SLO** | **SP 1 & 4** | **Deionized water maintenance for the entire NS building is met by this funding. This includes resin change once a month and parts.** | **$17,000** |
| **11.** | **D3**  **Maintenance Agreement for 2 Perkin-elmer FTIR instruments** | **500010** | **SLO** | **SP 1 & 4** | **These Fourier Transform Infra Red instruments used by organic chemistry laboratory classes need periodic maintenance to run efficiently.** | **$12,100** |
| **12.** | **D4**  **Airgas rental agreement** | **500010** | **SLO** | **SP 1 & 4** | **Gas cylinder rental agreement- rental and usage of Helium, argon, nitrogen, air, acetylene, carbon dioxide and hydrogen gases needed to run instruments like gas chromatography, mass spectrometer instruments used by organic chemistry laboratory classes.** | **$4,000** |
| **13.** | **D5**  **Printing costs** | **500010** | **SLO** | **SP 1 & 4** | **As we increase the number of students we serve through increased class offerings of 44%, we need to increase the printing budget for each class.** | **$2,000** |
| **14.** | **A4**  **HPLC ( High Pressure Liquid Chromatography)** | **600010** | **SLO** | **SP 1 & 4** | **HPLC is a common tool used by chemists in both industry and academia and at all education levels (AS, BS, MS, PhD). Thus, being able to train our students on this instrument would provide them with a skill set that is marketable right out of Palomar College.** | **Cost + S&H**  **Each (32000 +3000) =$35000** |
| **15.** | **A5**  **Explosion proof refrigerator** | **600010** | **SLO** | **SP 1 & 4** | **We need to replace the 20-year old refrigerator that is currently housing all the organic reagents that are flammable and prone to explode without cooling.** | **Cost + S&H**  **Each (1603 +180) =$1783** |
| **16.** | **D6**  **Replace the windows to the ones that open in faculty offices and labs** | **500010** |  |  | **With the A/C and heating in the building not working properly 90% of the time, if the windows open, we can at least adjust the temperatures in offices and the chemistry labs to save the faculty and students from extreme temperature swings that currently occur which make it impossible to work. We have taken our request to the Facilities Review Committee but would like it considered here as well.** | **$ 30,000** |
| **17.** |  |  |  |  |  |  |
| **18.** |  |  |  |  |  |  |
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**STEP V. Contract Position Requests.** Prioritize all contract positions you feel are needed to achieve goals, plans and strategies identified in Step II. Include all requests for Classified, CAST, and Administrator positions that either replace a vacancy due to retirements, resignations, lateral transfers, etc., or any new positions. You may request up to ten (10) positions and they must be prioritized to be considered by IPC. Please note that only these position requests will be prioritized by IPC when developing the annual Staffing Plan for Instruction.   (Do not include faculty positions.)

| **Priority Number for Contract Position Requests** | **Position Title/Category**  **Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide a detailed rationale for the each position. The rationale should refer to your discipline’s goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If position is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include benefits)** |
| --- | --- | --- | --- | --- | --- | --- |
| **1.** | **ISA 4** | **221010** | **SLO** | **SP 1 &4** | **If we intend to offer night chemistry courses at South Center at Rancho Bernardo to attract the high school students, we need an ISA who could work at the South Center at night to order the chemicals, prepare the reagents, maintain the stock room and labs and take care of waste chemicals. Currently we have only one ISA who starts off at 8am and one ISA who serves the night labs and closes down the lab at 9 pm in the main campus. We would want to hire this person in advance of the opening of the South Center so that he/she could be well trained by our ISAs already in place.** | **$52,000 (salary) +**  **( $24,237**) |
| **2.** |  |  |  |  |  |  |
| **3.** |  |  |  |  |  |  |
| **4.** |  |  |  |  |  |  |
| **5.** |  |  |  |  |  |  |
| **6.** |  |  |  |  |  |  |
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| **8.** |  |  |  |  |  |  |
| **9.** |  |  |  |  |  |  |
| **10.** |  |  |  |  |  |  |

**Department Chair/Designee Signature Date**

**Division Dean Signature Date**