EQUIPMENT NEEDS ASSESSMENT APPLICATION
Fall 2016

Name of Person Submitting Request:	**Wendy McKeen**
Program or Service Area:	**Chemistry**
Division:	**Science**
Date of Last Program Efficacy:	**Spring 2016**
What rating was given?	**Continuation**
Equipment Requested	**Balances**
Amount Requested:	**$8,000**
Strategic Initiatives Addressed: (See http://www.valleycollege.edu/about-sbvc/office-of-president/college_planning_documents/documents/strategic-plan-report-working-doc-8-25-15-2.pdf)	2 (Student Success) and 5 (SLO)

NOTE: To facilitate ranking by the committee, submit separate requests for each item; however, multiple items can be submitted as one request if it is required that the equipment is packaged together.
Replacement X Additional X
Are there alternative funding sources? (for example, Department, Budget, Perkins, Grants, etc.)
Yes ☐ NO X
If yes, what are they? _____

1. Provide a rationale for your request. (Explain, in detail, the need for this position.)

This request is to both replace imprecise balances and increase the number of balances provided for student use across the Chem 101, 150 and 151 sections. Currently the department has 18 lab sections for Chem 101 and 20 lab sections between Chem 150 and 151 for a total of 38 lab session per week. For the majority of the week there is significant overlap between the sessions. At a given time, the department currently has 5 balances to share between 56 Chem 101 students and only 6 balances to share between 48 Chem 150/151.

Due to the deficiency in the number of balances accessible to students, students are forced to spend too much time waiting in line for a balance to become available. This creates a bottleneck in and near the balance room and poses a potential safety hazard due to a large number of students gathered in one area of the lab. Due to the increased waiting time for an available balance, students are often rushed towards the end of lab in order to complete the experiment which poses another potential safety hazard. To help alleviate the bottleneck students are often asked to perform laboratory experiments in partners due to lack of equipment. One of the measureable course objectives for both Chem 101 and 150 is to be able to record accurate measurements. When students are partnered often only one of the pair becomes proficient in this skill. In Chem 151 one of the SLOs is "Given a lab with multi-step aqueous reactions, students will design a sequence of steps in order to collect the necessary information, analyze the experimental data using principles of equilibrium, and form conclusions based on data and calculations. Students will show evidence of the application of the scientific method in their conclusions and analyze their results for sources of possible error." If the students are not becoming sufficient in accurately collecting data at the Chem 101 and Chem 150 levels due to a limited number of instruments available, then achieving this SLO for Chem 151 becomes increasingly difficult.

In addition to the need to increase the number of balances provided to the students, two of the current balances in the Chem 101 lab are outdated and insufficiently report mass measurements

to the incorrect number of decimal places. Again, one of the course measureable objectives for Chem 101 is to "make reliable observations and accurate measurements". The level of precision of the balance affects the data collected and subsequently the students' calculated values that are included in their reports.

This request allows the department to buy 8 new balances. This would replace the 2 imprecise and outdated balances and increase the number of balances accessible to students by 6.

2. Indicate how the content of the department/program's latest Efficacy Report and/or current EMP supports this request and how the request is tied to program planning. *(Directly reference the relevant information from your latest Efficacy Report and/or current EMP in your discussion.)*

The Department has worked very hard to expand our offerings in CHEM 150/151/212/213 to meet demand, and planning efforts include continuing to increase and promote our program to try to maintain these current levels of FTES. *(Efficacy report, page 31)*. The number of FTES in 2014/2105 was 388.82 *(Efficacy report, page 4).* This semester (Fall of 2016) the department offers 38 sections of lab between Chem 101/150/151. Please keep in mind that lab meets once a week per Chem 101 section and twice a week per Chem 150 and 151 sections. The increased enrollment and offerings has led to a lack of equipment per student and thus supports the request for more balances. If we are to continue to provide first-rate laboratory-based education, which is necessary for students to succeed in the competitive disciplines of science majors requiring Chemistry, we will need to see an increase to our budget. *(Efficacy report, page 34).*

A consistent strength of the Chemistry Department for many years now is maintaining a rigorous program of well-prepared transfer students. We receive frequent feedback from other institutions as well as from former students who report that our students are among the best-prepared once they transfer *(Efficacy report, page 31).* The use of proper and accessible equipment is one of the things that allows us to prepare students for transfer as they will be expected to have knowledge of basic laboratory techniques and measurements.

3. Indicate any additional information you want the committee to consider *(for example, regulatory information, compliance, updated efficiency, student success data, planning, etc.).*

Students often huddle near the balance room waiting in line, creating a potential safety hazard.

4. Indicate any related costs (including any ongoing maintenance or updates) and department/program's plans to support those costs.

The balances would need to undergo calibration (usually yearly). Funds for balance calibration are requested separately through requests for equipment maintenance.

5. What are the consequences of not funding this equipment?

Without funding, the students will have to continue sharing the few balances we have. This means when two labs are running simultaneously, which happens for the majority of each day M-Th, there will be approximately one balance per 9.5 students. The bottleneck around the balance room will continue to pose a possible safety threat. When absolutely necessary to curtail the bottleneck, the students will have to perform the experiment in partners. Performing a lab in partners will decrease the number of students who will test proficient in certain measureable course objectives and subsequently SLOs as they will not have sufficient enough practice in obtaining and recording accurate measurements.