EQUIPMENT NEEDS ASSESSMENT APPLICATION
Fall 2019

Name of Person Submitting Request:	**Jessy Lemieux and Michael Torrez**
Program or Service Area:	**Chemistry**
Division:	**Science**
Date of Last Program Efficacy:	**2016**
What rating was given?	**Continuation**
Equipment Requested	**Vernier Lab Quest 2**
Amount Requested:	**56 (2 class sets) $329 each, $18,424 total**
Strategic Initiatives Addressed:	2. Promote Student Success
Needs Assessment Resources (includes Strategic Initiatives):	https://www.valleycollege.edu/about-sbvc/campus-committees/academic-senate/program-review/needs-assessment.php

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 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 equipment.)

Vernier Lab Quest interfaces are data collection devices which provide simplified interfaces for a variety of accurate data collection sensors such as gas pressure, temperature, and solution pH sensors. Lab Quest devices are significantly smaller and lower in cost than laptop computers and are much more appropriate for the lab setting.
We have used Lab Quest interfaces in nearly half of our CHEM 150 and CHEM 151 experiments for many years. They are also used to interface with digital pressure sensors in the Gas Laws experiment in CHEM 101. Our current set of Lab Quest devices have become damaged over time and the built-in batteries for the vast majority of them no longer take a charge. An increasing number do not even turn on when plugged in.
Lab Quest devices are a cost-effective alternative to expensive PCs for digital data collection. Without them the digital data collection performed in many of our laboratory experiments would not be possible. We request a replacement for our aging set of Lab Quest units to preserve opportunities for digital data collection in our labs.

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.)*

A goal of the last efficacy report and the current EMP is to increase the number of degrees awarded in Chemistry (which have increased to 12 – 14 in the past three years, compared to 7 – 8 in the two years prior). Lab Quest interfaces are widely used in General Chemistry instructional labs and are a cost savings versus data collection and storage via PC. Collection of many

sequential pH, pressure, or temperature data points over time is essentially impossible without a digital interface and many of our labs depend on this preponderance of data for their instructional quality.
Our current set of Lab Quest devices have lost much of their functionality due to their age. They are outdated and no longer supported by the manufacturer and many of them have become damaged over the years. Furthermore, transferring students need modern instrumental experience that will be applicable in laboratory settings at the university level. Practicing laboratory skills with outdated equipment may hinder their academic progress inside the lab when tasked with using modern instruments that their peers and instructors already have experience. Using such modern instruments as the Lab Quest 2 will allow them to perform well in future classes that use the same level of modern instruments. These future transfer students laboratory experiences will therefore be enhanced and expanded by securing now the requested Lab Quest 2 instruments. 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 replacements for our aging data collection interfaces. *(Efficacy report, page 34).*

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

We currently run 7 sections of CHEM 150 and 3 sections of CHEM 151, for a maximum of 240 students in these labs per semester who use Lab Quest devices in lab regularly. In addition, we run 21 sections of CHEM 101 comprising up to 588 students who use them in lab occasionally. These devices get a lot of use in our labs, and due to their age and the associated wear and tear our number of fully working units is decreasing substantially. A replacement set is certainly needed.

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

None Expected.

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

Fewer Lab Quest devices will be available and essential experience with accurate digital collection of pH, pressure, and temperature data will become less available to our chemistry students. The remaining instruments have to be shared and this creates bottlenecks. The quality of the laboratory experience will be hindered. Also, performing a lab in partners (due to our dwindling supply of Lab Quest instruments currently in stock) will likely decrease the number of students who will test proficient in certain measurable course objectives and SLOs as they will not have sufficient enough practice in obtaining and recording accurate measurements. The labs may run over the allotted time and is not in the best interest of students.