

EQUIPMENT NEEDS ASSESSMENT APPLICATION
Fall 2017

Name of Person Submitting Request:	Sheri Lillard
Program or Service Area:	Chemistry
Division:	Science
Date of Last Program Efficacy:	2016
What rating was given?	Continuation
Equipment Requested	Gas Chromatographs (3)
Amount Requested:	\$7,000 (\$1989 ea + tax, shipping, etc.)
Strategic Initiatives Addressed:	Student Success Strategic Directions + Goals

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

Are there alternative funding sources? (for example, Department, Budget, Perkins, Grants, etc.)

Yes NO

If yes, what are they? _____

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

The equipment requested, **Vernier Mini GC Plus Gas Chromatograph** (GC), is standard instrumentation for laboratory experiments in Organic Chemistry (CHEM 212 & 213), and quantitative analysis (CHEM 205). The antiquated, low-grade instrument that we used for many years stopped functioning and has since been salvaged. Although we received a donated instrument a few years ago, it is much fancier and more suitable for the small class sizes in CHEM 205. The 3 instruments we are requesting are education-grade portable devices by Vernier, rugged enough to accommodate the 100 or so students per semester in the Organic Chemistry labs. Expertise in the technique of GC is expected when our students transfer to the university.

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 main focus of the last efficacy report and current EMP is to increase the number of degrees awarded in Chemistry (which have doubled from 7 to 14, since 2014-15). Organic Chemistry is required to complete the degree and as we have increased the offerings, in response to demand for this class, the equipment utilized by this sequence of classes needs to be upgraded.

Furthermore, we have had successful honors students rank highly at the Honors conference held each year at UC Irvine, as well as go on to undergraduate research opportunities when they transfer. These experiences will be enhanced and expanded by securing the requested equipment.

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

When this building was designed, the typical offering of Organic Chemistry was one section that was on-sequence; in other words, CHEM 212 in the Fall and CHEM 213 in the Spring, for a total of 2 sections per year. In Fall 2011, when we began using the new building, we had 3 sections in the Fall and 2 sections in the Spring, for a total of 5 for the year. This already represented a 150% increase in Organic lab sections, compared to what had been offered for many years. If we further compare 2011–2012 (5 sections) to 2016–2017 (11 sections), we have doubled the number of sections offered, or have experienced another 100% increase in 5 academic years. This number of sections remains stable at 11 sections for 2017 – 2018.

We are doing a disservice to our students by lacking robust equipment to teach them how to separate organic compounds. They will not have the hands-on skills that they need when they get to their junior-level laboratories at the 4-year institution.

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?

Without funding, the students will not gain experience in analyzing organic samples with GC. This will undermine their success in CHEM 212, 213, and 205, by not permitting them to document hands-on experience with this instrumentation.