

FACILITIES NEEDS ASSESSMENT APPLICATION
Fall 2015

Facilities: Programs should list no more than three facility or renovation items. Identify the area in need of physical renovation, maintenance and/or repair. Requests for additional space should also be listed here. *Requests listed in this category will be forwarded to the Facilities Committee to evaluate through their own processes.* Provide a thorough rationale, **using data to support your request**, in order to help the Facilities Committee with their evaluation. List the approximate cost of your request.

Name of Person Submitting Request:	Sheri Lillard
Program or Service Area:	Chemistry
Division:	Science
Date of Last Program Efficacy:	Fall 2011
What rating was given?	Continuation
Strategic Initiatives Addressed: (See Appendix A: http://tinyurl.com/l5oqoxm)	2: Student Success 6: Facilities

Replacement

Growth

1. Renovation Request

ADDING LAB DRAWERS: Increasing lab drawers for Organic Chemistry (CHEM 212/213) in PS 310 and PS 311 and equipping CHEM 205 drawers (PS 311) with locks. We moved into the Physical Science building during Summer 2011, and have been fully occupied beginning with the 2011-2012 academic year. We currently have one laboratory dedicated for courses in Organic Chemistry, which include CHEM 104, CHEM 212, and CHEM 213. Due to the type of chemicals used in these courses, it is important for beginning students (e.g., CHEM 101) not to share the same space. The adjoining room, PS 311 is an instrument room, which contains balances, other instrumentation, and additional drawers. In recent years, due to increased lab offerings and occupation of the other four lab rooms, the CHEM 205 lab (Quantitative Analysis) has also migrated to PS 310/PS 311, and now utilizes un-locking lab drawers in PS 311.

In the short period of time, just over 4 years, since we have moved into this building, our offerings of CHEM 212/213 have grown significantly (see Enrollment Trends below). *If we are to maintain the quality of instruction for our current lab offerings, ensure student success, and grow according to the District's and College's projections, we must be able to expand the number of lab drawers for these courses.*

Quality of Instruction. CHEM 212/213 are sophomore-level (and sometimes upper-division) courses at the four-year institutions. When our students transfer, and most of the students in these courses do transfer, they are expected to have acquired a certain standard of laboratory skills. In this particular year-long sequence, it is absolutely necessary that students work independently (i.e., without lab partners), and this can only be accomplished if they have their own set of glassware in their own lab drawer.

Enrollment Trends. 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 2015–2016 (10 sections), we have doubled the number of sections offered, or have experienced another 100% increase in 4 academic years.

Current Lab Drawers. We have 76 lab existing drawers that are used for CHEM 212/213. Given that we currently offer 5 sections of CHEM 212/213 this semester, with a cap of 20 students, this amounts to 100 lab drawers needed. We are already short by about one section, to allow each CHEM 212 and CHEM 213 student to perform their lab work independently.

Proposed Expansion. There are three areas in PS 310/311 proposed for this project: 1) There is space in PS 310 that is currently used for cubbies (to hold backpacks, etc.), which students rarely use; 2) There are a few large cabinets, which are also rarely used; and 3) There are large cabinets in PS 311 that are sometimes used. A preliminary estimate reveals that converting these spaces would provide an additional 64 lab drawers, which when combined with the existing 76 will give a total of 140 drawers. This number of drawers could house 7 complete sections of CHEM 212/213, would allow our current students to work independently, and would accommodate additional growth over the next several years.

The other part of this request is simply to have locks installed on the bank of drawers currently used for CHEM 205. Given the rigorous nature of the expected lab results, it is critical that the students can lock up their glassware, in order to prevent students in other classes from “borrowing” it. There is no additional construction necessary.

Consequence of Not Funding This Request. Most importantly, quality of instruction will suffer, because we will have no choice but to have students share lab equipment. We already know that such a situation does not promote student success in the laboratory sciences—students who have relied too heavily on lab partners in previous courses lack the necessary skills to set up the glassware and perform the experiments accurately and efficiently. This practice of working with lab partners is pedagogically unsound, especially for a lab sequence so critical to many of the sciences (e.g., chemistry, biology, biochemistry) and professional health areas (e.g., medical school, pharmacy school, etc.). The students will not achieve the independence that is expected by our faculty, the degree, and the instructors at the transfer institutions. Additionally, we will have no room to grow, because we are already beyond capacity with the existing lab drawers. The steady increase in enrollment over the past few years clearly shows that this course sequence has the demand, and we would be doing our students a significant disservice if we could not maintain or expand the current number of Organic Chemistry sections.

Approximate Cost: We are still waiting for a detailed quote from the contractor. At this time, we estimate around \$25k - \$30k.