Assessment Plan

Yuba Community College District
YC - Chemistry Program Recommendations

YC - Chemistry Program Recommendations

Recommendation: Immediately implement new course, Chemistry 18A/B: Organic Chemistry.

The Yuba College Chemistry Department recognizes and agrees with the American Chemical Society (ACS) Guidelines for Chemistry in Two-Year College Programs recommendations that, "the chemistry curriculum must be driven by the needs of the students, the mission of the institution, and the standards of the discipline." In this regard, Chemistry 18A/B, Organic Chemistry for Health and Life Sciences has been developed. A course outline has been prepared and approved.

The program has recently completed the processes necessary to initiate an Associates Degree in Chemistry. To obtain this degree, students will be required to complete Chemistry 18A/B. Chemistry 18A/B will meet the needs of students who plan to transfer to a four-year institution to pursue studies in the natural and life sciences. The chemistry department is prepared to offer Chemistry 18A/B effective with Fall semester, 2012. With regard to chemistry laboratory practices, ACS Guidelines recommend, "At least 50 square feet of net space per student should be provided, including lab tables and benches." Current laboratory square footage is approximately 1000 sq. ft. Current enrollment caps allow for only 42 sq. ft. per student, 17% less that guideline standards. Additionally, ACS Guidelines recommend a maximum of 20 students per instructor for an organic chemistry laboratory. The Chemistry department therefore recommends that Chemistry 18A/B be capped at 20 students.

Year(s) Requested: 2012-2013
Request Date: 02/03/2012
Recommendation Priority: 3. High Priority

Recommendation: Hire additional chemistry faculty member(s) to meet current and future needs.

The chemistry program curriculum serves as an integral part of a wide variety of Yuba College's educational offerings. It provides the specific education required for a long list of academic and career goals and thus supports a wide variety of transfer-level and vocational endeavors. This has resulted in the College being able to offer an education to a much larger number of students. The chemistry program is currently involved with the ongoing assessment of the following institutional SLOs: scientific awareness, critical thinking and computation.

While the program serves students in a wide variety of intended endeavors, improvements in service could be accomplished by increasing the number of class sections offered to capture the full number of students who are interested in taking chemistry courses. The ACS Guidelines for Chemistry in Two-Year College Programs states, "Providing a current and effective chemistry program requires an energetic and accomplished faculty." Due to the inconsistent availability of qualified adjunct faculty as well as a particularly strong enrollment demand for coursework in the subject, the District management staff needs to remain aware (even during the current hiring freeze) that the chemistry department could utilize an additional full time faculty member and, in the near term, could utilize one or more additional adjunct faculty member(s). This, too, is in line with the ACS Guidelines which state that, "Full-time, permanent faculty should be sufficient in number to teach the full range of courses on a regular basis, with the number of credit hours taught by permanent faculty exceeding 75% of the total chemistry offerings." The ACS Guidelines further stipulate that, "contingent faculty should only be used to provide specific expertise and accommodate term-to-term fluctuations in enrollment."

The program has the potential for growth in offerings of existing and previously offered courses. In addition to the need for an additional fulltime faculty member, it is recommended to employ additional adjunct faculty members when funding resources become available; this is particularly imperative until a fulltime position is added.

Year(s) Requested: 2012-2013
Request Date: 02/03/2012
Recommendation Priority: 3. High Priority

Recommendation: Implement new course, Chemistry 60: Allied Health Chemistry

The department is in process with establishment of a new course, Allied Health Chemistry (Chemistry 60) which is analogous to Introductory Chemistry (2A), to more appropriately serve health science vocational students, especially those in Veterinary Technology and Radiologic Technology. Formalization of a new course outline is in progress. (Additional faculty staffing is required to implement this course without sacrificing the capability of the program to offer a sufficient number of course sections to meet the current demand for Introductory Chemistry.)

Year(s) Requested: 2013-2014
Request Date: 02/03/2012
Recommendation Priority: 2. Medium Priority

Recommendation: Establish new staff position of Chemistry Tutor especially to meet the needs of formative level students.

Anecdotal evidence collected from Chemistry 2A students during several years has brought to attention various inadequacies in the current situation concerning student tutoring. Many students have reported the following to the Chemistry 2A instructor:
+ student tutors are frequently overwhelmed by demand for their services
+ availability of student tutors is too limited
+ student tutors are unable and/or unwilling to properly police their sessions for attendees who disrupt the learning process, i.e., attendees who are inattentive and those who are seeking information or advice to circumvent learning in favor of simply finding out "the test answers"
+ student tutors occasionally demonstrate insufficient skill level in providing instruction; this is particularly true when students are pursuing a deeper understanding of the subject matter

Chemistry coursework involves a considerable amount of mathematics. Unlike the Math Department at Yuba College, the Chemistry Department doesn't have the quantity of faculty members to provide a departmental tutoring center (without faculty having a substantial amount of release time to serve as tutors for their courses).

Year(s) Requested: 2012-2013
Request Date: 02/03/2012
Recommendation Priority: 2. Medium Priority