Full-Time Faculty Position Request Form 2018 - 2019

This form is used by departments and programs to request new or unfilled faculty positions relying on Program Review and/or other justifications. Submit one form for each position requested. For multiple positions, indicate priority of request (e.g., Subject Position 1, Subject Position 2, etc.). Forms are due to Division Deans by ~~September 15, 2017~~. NOV. 17, 2017

Position Requested: CHEMISTRY FACULTY

Contact Person: ADELIZA FLORES

Discipline/Division: CHEMISTRY/MSEPS **Starting Term: Fall** 18 **Spring** ☐

This form requires the use Enrollment Management Tool data, which can be found at the following link: http://www.laspositascollege.edu/researchandplanning/FacultyPrioritization.php (If you have any questions about the data, please contact Rajinder Samra 925-424-1027 or rsamra@laspositascollege.edu) or your Dean. The data will be verified by the Dean. Do not attach data spreadsheets.

Check if position is a: Replacement ☐ **or New** ■

If replacement: What is the position code? (see Dean) ☐
Name of the person being replaced: ☐
Length of time position(s) unfilled: ☐

CRITERIA

1. **Number of Full-Time Faculty currently in Discipline:** 3
   If requesting more than one position, add 1 to this number for each subsequent position requested.

2. **Percentage of FTEF taught by full-time faculty as load for the past six semesters, and projected for one year assuming a successful hire. (Use data from link above. If requesting more than one position, see Rajinder Samra to determine the projected numbers.)**

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Projected Fall 2018	Projected Spring 2019
35.2	38.6	47.2	52.8	43.6	24.3	55.7	58.8

3. **a. For Instructional Faculty: WSCH per FTEF for the past six semesters (use data from link above):**

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
424.3	429.5	427.5	438.2	449.5	428.4

b. For non-instructional faculty (librarians and counselors): Student/Faculty ratio for the past six semesters, and projected for one year assuming a successful hire. Divide headcount by number of full-time faculty. For example: 8000 students divided by 3 full-time faculty. 1:2666

(If requesting more than one position, see Rajinder Samra to determine the projected numbers).

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017	Projected Fall 2018	Projected Spring 2019

4. **Program Characteristics:**

a. **List the courses taught and/or work performed in the discipline. (Be brief and specific. Use your Program Review to complete this section.)**

Full-time chemistry faculty teach a wide range of curricula: a preparatory course (31), majors courses in General Chemistry (1A and 1B) and Organic Chemistry (12A and 12B), and chemistry for allied health majors (30A and 30B). Discipline faculty also co-teach the Environmental Studies course. Chemistry is a fundamentally hands-on, analytical subject requiring not just expert content knowledge but specialized teaching skills that support student learning of analytical, technical, safety, and procedural skills. Each course requires prep for an intensive lab component with unique activities every week. General Chemistry and Organic Chemistry faculty prepare for 2 different labs every week. Each lab requires specialized content knowledge, techniques, instrumentation knowledge, safety training, and multi-tasking ability to ensure that labs optimize learning, safety, and efficiency. Equipment may need special set-up procedures, trouble-shooting, and close-down procedures that require extra time before, during, and after the lab. Some faculty also take on honors and independent study projects that may require extra time in the lab. Faculty also need to constantly review and revise lab manuals to incorporate sustainable measures and cost-effectiveness and to improve safety. We plan to create an Environmental Chemistry course for GE students and new full-time faculty would help in this effort. It falls to full time faculty to acquire new and replacement equipment as technology changes; to organize training for the new equipment; and to develop and incorporate new lab activities to fully utilize this equipment. Full time faculty must also attend meetings to advocate for new equipment, new training, and new facilities. Full-time faculty also troubleshoot, repair, contact company service techs, and do regular maintenance of major instrumentation. They also prepare paperwork every year to request for lab tech and equipment. This has been and will continue to be a time-intensive process due to a high turnover in lab tech personnel and aging equipment and instrumentation. Discipline faculty have to constantly review current lab facilities for repairs and improvements so that they can advocate and plan for new facilities to accommodate our growing program. Full-time faculty actively participate in science and engineering activities: e.g., planning for 4 science seminars every year, poster session, Chemistry Club, STEM-focused conferences (e.g., HSI-grant, Transforming STEM, Advanced Placement, ACS meetings, the new Guided Pathways initiative, etc). Faculty also participate in partnership initiatives with companies (e.g. environmental monitoring and Form Factor) for potential internship positions, job prospects, and collaboration in developing curriculum. Full time faculty in Chemistry ensure that our department not only grows, but it grows in an intelligent way that serves other disciplines and keeps pace with 21st century advances.

b. Total number of primary sections as identified in data taught in the discipline in each of the last six semesters (use data from link above):

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
15	14	16	15	18	16

c. Student enrollments in the classes taught or number of students served in each of the last six semesters(use data from link above):

Fall 2014	Spring 2015	Fall 2015	Spring 2016	Fall 2016	Spring 2017
87	81	92	90	103	93

d. List special characteristics of the discipline such as: (Be brief and specific. Use your Program Review to complete this section.)

- Mandated class size limits due to state, contract, and accreditation standards.
- Facilities
- Number of courses out of the total number of courses in the discipline that meet General Education Requirements
- Number of courses out of the total number of courses offered that are required as part of an AA/AS degree, certificate or transfer
- Discipline provides basic skills courses
- Discipline provides mandated and specialized services to students
- Other

Class size limit: Chemistry laboratories are limited to 24 students per lab section (22 for Organic Chemistry sections) for safety reasons, although we typically add 2-3 students to each section because of high demand and long wait lists. Introductory courses often have two lab sections combined for one lecture session.

Facilities: The Chemistry Program has 3 laboratories, 2 balance rooms, a large preparation room, and an instrumentation room along with shared lecture classrooms. Each laboratory is equipped with conventional fume hoods and/or individual fume hoods. Research-grade instruments and equipment housed in these facilities include a newly acquired GC-MS, a GC, polarimeter, milligram balances, ovens, AA Spectrometer, Logger Pro, melting point meters, gas tanks, UV and Visible Spectrometers, etc. Each teaching lab has about 100 lockers--each with a set of glassware for students. This constitutes a limit on class sizes. Lockers must often be shared, putting a limit on the types of projects students can undertake.

-All seven CHEM courses meet the Physical Science (with lab) GE requirement and all seven are requirements for degrees, certificates, and transfer.

-Chem 30A and 30B are part of the AA in Biological Sciences: Emphasis on Allied Health and are required for transfer in Dental Hygiene. Chem 30A is required for the AA in Viticulture and several other degrees. Chem 1A, 1B, 12A and 12B are required for AS in Chemistry and AA in Biology. The Program has two degrees - AS Chemistry and AA Chemical Education.

-Chem 31: Introductory Chemistry, prepares students for General Chemistry, especially if they did not receive this preparation in high school and is therefore a prerequisite for degree level courses.

5. **Describe how courses and/or services in this discipline impact other disciplines and programs. (Be brief and specific. Use your Program Review to complete this section.)**

Chemistry is often called the "central science" because it is so integral to other areas of science and technology such as biology, medicine, advanced materials, manufacturing, geology, environmental science, physics, art, nutrition, nursing, enology, and engineering.

Chemistry can have its strongest impact when collaborations are made with other disciplines like when biochemistry knowledge helps pre-nursing students understand physiology; when mathematics help students understand equilibrium and kinetics in General Chemistry; when Chemistry illuminates environmental science; or when science informs voter choices in the political arena at election time.

Chemistry faculty work with other STEM disciplines to ensure that courses are scheduled so that students can complete requirements in a timely manner.

-General Chemistry (Chem 1A and 1B), and Organic Chemistry (12A and 12B) are critical courses for Chemistry, Biology, Chemical Engineering, Biomedical Engineering, Pre-Medical, Pre-Pharmaceutical, Pre-Dental, Pre-Veterinary, Nutrition, and other related majors. Chemistry 1A (and sometimes 1B) are required for other engineering, physics, and computer science majors. These classes are central to STEM Education.

-Chemistry for Allied Health Majors (30A and 30B) support Pre-Nursing, Pre-Dental Hygiene, Nutrition, Health, Physical and Occupational Therapy, Kinesiology, Viticulture, Enology, Paramedic/EMT, Fire Science, Occupational Health and Safety (OSH) and other related programs.

Chemistry 31 is also an option for the AS degree in Computer Sciences, the AA in Environmental Studies and the AA in Liberal Studies.

6. If this is the first full-time position in the discipline, discuss: (Be brief and specific. Use your Program Review to complete this section.)

   b. Justification for the position.
   c. Projected start-up costs for equipment, facilities, and support staff for the first three years.
   d. Projected enrollment growth for the next three years, starting with the first semester of the projected faculty hire.

Not applicable.

7. What are the impacts on students, the discipline and the college of NOT filling this faculty position? What are the programs/courses/services that have not been or cannot be offered due to the vacancy? (Be brief and specific. Use your Program Review to complete this section.)

The lack of a fourth full-time chemistry faculty has affected the program in many ways. The number of sections offered by the Program has grown by 67% (from 27 to 45 sections annually) since the last full-time hiring was done in 2006 (12 years ago!). A lot of personnel hours have been spent on hiring part-time faculty to cover additional classes. In summer 2016, we have had to cancel a class due to lack of faculty to teach it. In 2016 – 2017, 4 new part-time faculty had to be hired to cover classes. A fourth faculty is necessary to lend some stability to the department when another faculty takes a leave or perform other duties as reassigned time. The Program has not had an infusion of fresh talent, enthusiasm, and outside ideas that are vitally important for growth of the Program and for Student Success. Student success in chemistry impacts all other science and engineering programs. Without a fourth faculty, the faculty has been limited in their ability to modernize lab curriculum and create exciting courses accessible to all students such as "Chemistry and Society," "Environmental Chemistry," and "Wine Chemistry". There is a particular need for a full-time faculty who can dedicate their energy, enthusiasm, and creativity to revitalizing and strengthening our introductory chemistry curriculum (31, 30A, and 30B). Many courses, including biology, rely heavily on a strong introductory chemistry preparation of students to support their success in these courses. Without a fourth full-time faculty, the Program will have limited capacity to contribute to important initiatives that support success in STEM fields: collaborations with industry and national laboratories, seminar speaker series, internship programs, mentoring programs, Chemistry Club, HSI-STEM activities, active learning and research-based curriculum initiatives, ACS meetings, Guided Pathways, etc.

8. **Any additional information that addresses justification of the position. If multiple positions are being requested, this is an opportunity to differentiate the justifications for additional positions.**

The data presented above does not include the dramatic growth of our summer course offerings. In 2006, we only offered 3 summer sections, but in 2016, we offered 8 sections placing additional strain on our department resources such as faculty, equipment, and support staff.

The Program has acquired excellent instrumentation through Measure B including Carbon and Hydrogen NMR, FT-Infrared Spectroscopy, GC-MS (Gas Chromatography-Mass Spectroscopy, AA (Atomic Absorption Spectroscopy), Polarimeter, and Vernier Logger-Pro Interfaced sensors for temperature, UV-Visible Spectroscopy, radiation detection, pH measurements, etc. Each of these instruments requires a different expertise to operate, maintain, keep updated, develop curriculum for and, most importantly, teach! A fourth full-time faculty is badly needed to help spend hours learning, developing, and training others on these instruments. A fourth full-time faculty with experience using and teaching with each of these instruments would make the investments in instrumentation significantly more valuable.

Signatures:

Requestor

Dean 11-13-17

Vice President