

Office of the President

TO MEMBERS OF THE ACADEMIC AND STUDENT AFFAIRS COMMITTEE:

ACTION ITEM

For Meeting of July 29, 2020

ESTABLISHMENT OF A SCHOOL OF PHARMACY AND PHARMACEUTICAL SCIENCES, IRVINE CAMPUS

EXECUTIVE SUMMARY

UC Irvine proposes the establishment of a School of Pharmacy and Pharmaceutical Sciences (SPPS) under the Susan and Henry Samueli College of Health Sciences (SHSCoHS).

The SPPS will be established by building upon the current Department of Pharmaceutical Sciences (DPS) that already has a highly regarded and productive research faculty. Three of the four core degree programs that will be housed in the proposed SPPS are already in existence in DPS. The new school would add the Doctor of Pharmacy (Pharm.D.) degree program, which was approved by the UCI Division of the Academic Senate and systemwide Academic Senate in June 2020, and then by the UC Provost and President in July. The academic portfolio is consistent with offerings in the nation's top pharmacy schools, yet the goal of the new school will be to provide a level of distinction appropriate to contemporary healthcare and workforce needs. Financially, SPPS builds on the existing resources of the DPS and investment from the campus to support initial faculty and staff growth of the SPPS.

The new SPPS Pharm.D. program, arising out of the SHSCoHS that was established via a \$200 million gift from the Samuelis in 2017, will improve accessibility and affordability of graduate education. The program also presents a distinctive opportunity to 1) increase the pipeline of underrepresented students to Pharm.D. programs and 2) increase the number of underrepresented pharmacists providing healthcare to diverse populations of California.

RECOMMENDATION

The President of the University recommends that the Academic and Student Affairs Committee recommend to the Regents that Section 15 (a) of the Academic Units and Functions, Affiliated Institutions, and Related Activities of the University, as provided for in Standing Order 110.1, be amended as follows:

Additions shown by underscoring

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15. Professional Schools Pharmacy

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Pharmacy

- School of Pharmacy and Pharmaceutical Sciences, at Irvine, with curricula leading to the degrees of Bachelor of Science, Master of Science, Doctor of Pharmacy, Doctor of Philosophy

BACKGROUND

UCI's vision for the proposed school is as a place where innovative research and clinical practice, focusing on the whole patient, lead to new drug discoveries and improved human health.

Academic Rigor

The School Pharmacy and Pharmaceutical Sciences (SPPS) will continue to offer the following existing core degree programs: Bachelor of Science (B.S.) in Pharmaceutical Sciences, Master of Science in Pharmacology (M.S.P.), and Ph.D. in Pharmacological Sciences. In June 2020, a four-year Pharm.D. degree program was approved by the UCI Division of the Academic Senate and systemwide Academic Senate, and then by the UC Provost and President in July. The academic portfolio of the SPPS is consistent with offerings in the nation's top pharmacy schools, and the goal of the school to provide a level of distinction appropriate to contemporary healthcare and workforce needs.

The B.S. degree in Pharmaceutical Sciences (BSPS), which began in 2007, is the only program of its kind in the UC system, training students in a multidisciplinary approach so they can contribute to the advancement of new pharmaceutical technologies (e.g., gene therapy, assays using cloned enzymes). Graduates of this program seek employment in public or private sectors; in pharmaceutical production, control, or development; or choose to pursue graduate degrees—notably the Pharm.D. As an indication of the strength of the undergraduate program, UCI has been ranked by the Pharmacy College Application Service as the top feeder institution of U.S. pharmacy schools since 2013–14, with an average of 85 percent of pharmaceutical sciences graduates being accepted to pharmacy schools.

The Master of Science in Pharmacology (M.S.P.), which began in 2017, is a self-supporting, two-year, online degree program geared toward teaching students the fundamental principles of pharmacology, mechanisms of drug action, current topics in drug discovery, and strategies, techniques, and critical thinking skills needed for drug research. The program is targeted for working professionals in health and pharmaceutical industries, to expand and deepen their knowledge and understanding of pharmacology, as well as to develop their analytical and research skills that enhance their competency. Graduates have been accepted to Ph.D. programs or have advanced in their careers within the pharmaceutical industry.

The Doctor of Philosophy (Ph.D.) in Pharmacological Sciences program, which began in 2012, prepares students for research careers in academic research institutions, biotechnology and pharmaceutical industries, federal and state agencies, and private research institutions by

providing a research-intensive approach to the study of pharmacology and other pharmaceutical sciences. Students choose from among three program tracks: pharmacology, medicinal chemistry, or pharmaceutical sciences, which are all designed to accommodate the interests of as many potential students as possible by providing coursework and training appropriate to the track as well as individual interests. Pharmaceutical scientists, like those trained in this program, are essential for the discovery process identifying new treatments, cures, and preventatives for disease. Demand is especially high for scientists from underrepresented groups; it is a UCI priority to recruit and train underrepresented groups for the future workforce. Graduates are highly sought after for positions within government agencies and research institutes, pharmaceutical and device companies, academia, and health systems.

In contrast to the research-oriented Ph.D. program in pharmacological sciences, the Pharm.D. is a four-year, professional and clinical degree program. The first cohort of students is planned for enrollment in fall 2021. The proposed tuition structure includes Professional Degree Supplemental Tuition (PDST), a PDST proposal will be submitted for regental review in 2021. Pharm.D. coursework includes didactic and experiential content areas that span across four categories of science: biomedical sciences, pharmaceutical sciences, social/administrative/behavioral sciences, and clinical sciences. The primary differentiating factors of the UCI Pharm.D. curriculum compared to existing Pharm.D. programs at other universities are: 1) strong pharmaceutical sciences throughout the curriculum; 2) interprofessional education with the Susan and Henry Samueli College of Health Sciences (SHSCoHS) schools of medicine and nursing, as well as the program in public health; 3) integrative health approach to treating the whole patient utilizing a wide range of prevention and treatment modalities; and 4) rigorous clinical training in UCI’s academic medical center to ensure graduates are practice- and team-ready at graduation. The partnership of the proposed SPPS, SHSCoHS, UCI Health, and UCI Medical Center is designed to place UCI at the forefront of modern Pharm.D. training and practice.

Projected Enrollments in core programs

Enrollment by Academic Year							
Degree Program	18/19	19/20	20/21	22/22	22/23	23/24	24/25
B.S. Pharmaceutical Sciences	532	579	575	600	600	625	625
M.S. Pharmacology	18	19	32	50	60	74	86
Pharm.D.	0	0	0	60	120	180	240
Ph.D. Pharmacological Sciences	36	48	54	59	69	74	80
Undergraduate Student Total	532	578	575	600	600	625	625
Graduate Student Total	54	67	86	169	249	328	406
Total per Academic Year	586	646	661	769	849	953	1031

The SPPS has developed a faculty hiring plan that will build upon the existing 24 faculty to reach an estimated 50 faculty by 2025. The 18.5 existing FTE faculty in the Department of Pharmaceutical Sciences (DPS) will continue to teach primarily in the B.S., M.S.P., and Ph.D. programs, while lending their expertise in basic science courses in the Pharm.D. program. Recruitment is in progress to hire into the new Department of Clinical Pharmacy Practice (DCPP) inaugural faculty who will teach the majority of Pharm.D. courses and serve as preceptors at clinical practice sites during the experiential components of the Pharm.D. program. As of July 2020, eight clinical faculty have been hired; of these, five are women and one is African American. Recruitment continues with emphasis on attracting faculty representative of the diverse population of California. To meet accreditation requirements, UCI aims to hire by October 2020 two additional faculty members to develop first-year Pharm.D. courses.

Research conducted by current DPS faculty is highly regarded and representative of the broader field of pharmaceutical sciences, which encompasses many specializations. DPS received \$8 million in research funding in 2018 from federal agencies, foundations, and gifts. Benchmarking data in four categories (articles published, publications cited by others, grants per faculty, and dollars per grant) indicates UCI's DPS ranks similar to or better than many schools of pharmacy ranked highly by *U.S. News & World Report*, such as University of Minnesota (#2), The Ohio State University (#6), and USC (#9). The proposed SPPS will provide an opportunity to complement and build upon faculty research interests. New clinical faculty hires will expand the focus of research beyond basic sciences and create opportunities for collaborations in translational and clinical sciences. The DCPP faculty will improve and enhance the research profile of the school and UCI by adding pharmacists that participate in and conduct clinical trials, similar to the programs at UCSF and UCSD. Once fully expanded, the research program of the school will span the entire spectrum of drug discovery and development.

The school will build on the foundation of core faculty and strong educational and research programs, combined with the quality of its UCI's campus-wide partners, to achieve the goal of developing into a top-20 ranked school of pharmacy nationally within its first ten years.

Fit within Campus and System Priorities

Establishing the UCI SPPS supports the UC 2030 goals of producing more graduate degrees, supporting efforts to improve graduation rates for first-generation and underrepresented minority students, and investing in research and faculty growth. The SPPS is strategically aligned with the goals of the Irvine campus for promoting improved education, advancing cutting-edge research, and addressing community healthcare needs. The establishment of a school of pharmacy has been on UCI's formal Five-Year Planning Perspectives since 2009 and is a priority in the university's current strategic plan, implemented in 2016. The first pillar of the plan, Growth that Makes a Difference: Expanding Our Capacity to Improve Lives, describes the important goal of expanding the quality and impact of UCI Health. Achieving this goal explicitly includes the establishment of SPPS. The campus community and its leadership

recognize the critical roles scientists and clinical practitioners will play as leaders in campus efforts to improve the health and well-being of local, regional, and national communities.

The proposed school has been an integral planned component of the SHSCoHS since its inception in 2017. Emerging and future healthcare research and practice emphasizes teams of scientists, physicians, nurses, pharmacists, and public health specialists working together; therefore, the interprofessional model of the SHSCoHS, with schools of medicine, nursing, and population health, is enriched by the addition of the SPPS.

The Accreditation Council for Pharmacy Education (ACPE) requires that Pharm.D. programs be offered in schools or colleges of pharmacy. In other words, establishing the SPPS is necessary in order to obtain accreditation for the Pharm.D. program. The density of pharmacy schools, particularly in Southern California, is a testament to the continued demand for Pharm.D. education, which may be heightened given that the pandemic has prompted increased recognition of pharmacists as vital, frontline responders providing essential healthcare services; for example, CVS, Walgreens, and Amazon have already announced plans to hire more pharmacists. Most of the private and for-profit schools in Southern California do not have the strength of basic science faculty nor affiliation with an academic medical center and, moreover, offer their programs at a higher tuition price (e.g., \$14,000 to \$68,000 higher than UCI has proposed). In the UC system, only UCSF and UCSD offer the Pharm.D. degree, graduating only 105 and 66 pharmacists respectively in 2019, which is less than 15 percent of total California graduates. There are no public pharmacy schools in Los Angeles or Orange counties, two of the most populous counties in California. The addition of the Pharm.D. to UCI will increase accessibility and affordability of graduate education to Californians in Southern California. If approved, the creation of the UCI SPPS will be aligned with the stated overall goals of the UC system and will complement the schools of pharmacy at UCSF and UCSD. The three schools already have begun to and will continue to collaborate to strengthen integrated experiential and didactic training of all UC Pharm.D. students.

UC and UCI goals of increasing diversity, equity, and inclusion are central priorities for the SPPS. UCI has been successful in attaining federal designations as a Minority Serving Institution, Hispanic-Serving Institution, and Asian American, Native American, and Pacific Islander Service Institution. The SPPS will capitalize and build on existing successful UCI recruitment and support processes and infrastructure for underrepresented (URG) students to achieve its diversity, equity, and inclusion goals for its students, staff, and faculty.

The BSPS demonstrates UCI's successful progress in creating a diverse student body in a rigorous science major. Overall, UCI's undergraduate URG population is 29 percent; the BSPS is 19 percent URG, and 50 percent are first-generation college students. While the URG percentages approach the overall URG population of the United States of approximately 30 percent, the population of California is 45 percent URG, and localized Southern California population is 51 percent URG, indicating that there are many more opportunities to grow student populations to reflect local demographics. Bolstering the percentage of URGs in the BSPS program is an important factor for increasing the number of URG pharmacists since UCI is the number one feeder school for pharmacy schools in the U.S., with 85 percent of BSPS

graduates pursuing Pharm.D. degrees. Currently, among all existing California Pharm.D. programs, there is an average of only 11 percent URG students. Increased URGs in the BSPS program means increased URGs in Pharm.D. programs. Coupling these efforts to increase URGs in both the BSPS and Pharm.D. programs at UCI is a distinctive opportunity to increase both the pipeline of URG students to Pharm.D. programs, as well as the number of URG pharmacists providing healthcare to diverse populations of California. Although the proposed SPPS has a comprehensive diversity plan to promote diversity, equity, and inclusion for students, staff, and faculty, it is currently being revised to be more proactive and action-oriented to create new solutions given the heightened awareness of the inadequacies of past efforts. Looking across the entire proposed new school indicates we have work to be done, especially for our graduate programs and faculty.

Program	% URG	% Latino/Hispanic	% Black/African American	% Female
B.S. Pharm Sciences (n=579)	19	17	2	70
Ph.D. Pharm Sciences (n=33)	17	13	4	55
M.S. Pharmacology (n=21)	10	5	5	71
Faculty (n=28)	7	4	4	36
Staff (n=12)	25	17	8	100

In sum, establishing the SPPS supports UC 2030 goals and is aligned with the strategic goals of UCI, including the buildout of the SHSCoHS. Including the new Pharm.D. program improves accessibility and affordability of graduate education to Californians in Southern California, and presents a distinctive opportunity to increase both the pipeline of URG students to Pharm.D. programs, as well as, the number of URG pharmacists providing healthcare to diverse populations of California.

Financial Viability

The founding dean has worked closely with UCI’s leadership to determine appropriate resources and a realistic expenditure plan for SPPS development. UCI provosts have reaffirmed their commitment to supporting the school, specifically with faculty positions and funding, in memos from 2015, 2018, 2019, and 2020, in response to reviewer queries regarding potential impacts of COVID-19 on school development.

The school projects revenues generated from multiple sources, such as tuition (including PDST), self-supporting program revenue, indirect cost recovery, and philanthropy. Short-term investment from the campus and the health system during the initial years of development while new programs are established is designed to ensure success in the future. The growth of the SPPS will be implemented in line with available resources.

The foundation for resources for the SPPS is the current faculty, staff, and operational funds of the existing DPS, which has demonstrated financial stability for more than a decade. Effective management of campus allocations, revenues, and expenditures has resulted in balanced budgets year over year, thus the unit has a solid financial foundation to sustain growth as the SPPS is established. In addition, in recognition that the development of the Pharm.D. program requires some new resources, primarily clinical faculty to develop and deliver the didactic and experiential curricula, UCI has committed an additional \$17.9 million in new permanent and temporary funds to support the school over the next six years. Also, UCI's transformative fundraising campaign prioritizes health initiatives; for the SPPS, priorities are funds to support faculty positions, research, student scholarships, and naming rights for the school and a future building. Finally, the Susan and Henry Samuelli gift to UCI's College of Health Sciences provides three endowed chair positions for faculty in SPPS.

Contingency plans have been developed to respond to potential scenarios, such as below-target enrollments for the Pharm.D. program and impact of the COVID-19 pandemic on the school overall. Of the degree portfolio, the new Pharm.D. program has the highest degree of uncertainty. Since the program is proposed to be partially funded by PDST, lower enrollments reduce available revenues. While exercising diligence in maintaining progress toward accreditation, for which the school must demonstrate adequate faculty and staff resources to support educational outcomes, the school would adjust hiring plans as needed to reflect reduced enrollment. As repercussions from COVID-19 are still unfolding, contingency plans model various enrollment scenarios, budget cuts, and planning for online course delivery that may still be required, to some degree, in the fall of 2021 when the first Pharm.D. class will matriculate. The overall impact of the COVID-19 pandemic on the campus is yet unknown; however, the proposers have prepared extensive contingency plans. In addition to the plans for the Pharm.D. listed above, further contingency measures include reducing costs across the school, particularly in non-essential areas; and leveraging or reallocating school resources, such as salary savings or indirect cost recovery. As a last resort, the school would delay faculty hiring, and will utilize a greater number of UCI faculty within other SHSCoHS schools, within the UCI Medical Center, or hiring of per-course lecturers. Modeling these measures confirms that the school would be able to maintain a positive net position.

In sum, the proposed SPPS is expected to benefit society through contributing to scientific discovery and healthcare outcomes, increasing URG representation in the pharmacy profession, elevating UCI's profile and attracting highly competitive student and faculty applicants—all of which would support the investment in the school. UCI's Chancellor, Provost, and Vice Chancellor of Health Affairs agree there are important benefits for establishing the SPPS, and thus it is a priority in the UCI current strategic plan.

Review and Approvals

The proposal for the school has been reviewed and recommended for approval on the UC Irvine campus and subsequently at the Office of the President, following all required procedures. These rigorous procedures involve committees of the Academic Senate on the campus and systemwide, as well as the responsible academic leaders at UCI and UC Office of the President, culminating in the recommendation for approval from UCI's Chancellor, the UC Irvine Division of the Academic Senate, the systemwide UC Academic Senate, and the UC President.

Key to Acronyms	
ACPE	Accreditation Council of Pharmacy Education
B.S.P.S.	Bachelor of Science in Pharmaceutical Sciences
DPS	Department of Pharmaceutical Sciences
DCCP	Department of Clinical Pharmacy Practice
M.S.P.	Master of Science in Pharmacology
PDST	Professional Degree Supplemental Tuition
Pharm.D.	Doctor of Pharmacy
Ph.D.	Doctor of Philosophy
SHSCoHS	Susan and Henry Samueli College of Health Sciences
SPPS	School of Pharmacy and Pharmaceutical Sciences
URG	Under Represented Group