

GRADUATE ACADEMIC AND GRADUATE PROFESSIONAL STUDENTS

Goals

California's Master Plan for Higher Education gives the University of California the responsibility of enrolling and preparing graduate academic and professional students to help meet the needs of California and the nation, and to further the UC mission of teaching, research, and public service. Thus, reviving adequate support for the University of California is important, as its graduate education enterprise fuels California's role as a national and international leader.

UC's goals for graduate education are to offer outstanding degree programs, advance research, support undergraduate instruction, and prepare students to join a professional workforce. UC produces the leaders of the future — the teachers, artists, thinkers, innovators, scientists, inventors, doctors, lawyers, and nurses; and it creates an environment of exploration and discovery that stimulates innovation and invention. UC's internationally renowned graduate education enterprise serves to drive California's economy and its role as a global leader. UC graduate education allows California to grow, create jobs, and offer its residents the standard of living for which the state is well known.

Types of graduate degrees

UC awards both graduate academic degrees and graduate professional degrees.

Graduate academic degrees — These include academic doctoral and academic master's degrees in education, physical sciences, social sciences, arts, humanities, and engineering/computer science. The largest proportion of graduate academic degrees awarded at UC is in the STEM fields — science, technology, engineering, and mathematics. From the 2016–17 to 2018–19 academic years, more than 70 percent of UC graduate academic degrees were awarded in STEM fields.

Graduate professional degrees — UC's professional degrees include professional master's and professional practice degrees in fields such as law, medicine, nursing, business, education, architecture, public policy, and the arts. The graduate professional category includes professional master's degrees (e.g., M.B.A., M.Ed.) and professional practice degrees (e.g., J.D., M.D.). In the field of medicine, UC offers the nation's largest instructional program in health care and health sciences.

The University maintains multiple funding models for its graduate professional programs. Many state-supported programs (e.g., M.B.A., law, medicine) assess professional degree supplemental tuition (PDST), which allows the professional schools to ensure their excellence, accessibility, and inclusiveness, and assists with affordability (by requiring return-to-aid for tuition revenue). Programs assessing PDST commit substantial resources to student financial support, including grants and scholarships. Since PDST began in 1994, both the number of professional degree programs that charge PDST and the amount charged have increased.

Other UC graduate professional programs, primarily master's programs, follow a self-supporting funding model. The largest are business and management programs. These programs receive no state support and are funded entirely by revenues generated by the program and other non-state revenues. Self-supporting programs allow the University to serve additional students beyond those supported through state resources. They also fulfill higher education and workforce needs. Some self-supporting programs serve nontraditional populations such as full-time employees, mid-career professionals, and international students with specialized goals. Many programs are

offered through an alternative mode of delivery, such as online or hybrid instruction, alternative scheduling, or at off-campus locations.

Graduate enrollment share

UC's graduate education enterprise enrolls over 59,000 students, with doctoral students representing the largest number (28,400), and professional (22,000) and master's (8,000) comprising the remainder. Despite its size, UC's graduate education enterprise represents a smaller share of its total enrollment than that of its peers. Graduate students comprise 21 percent of total student enrollment at UC, which is lower than the proportion of graduate enrollment among other Association of American Universities public (27 percent) and private (56 percent) peer institutions. In addition, while the graduate share of UC's total enrollment has remained relatively constant over the last decade at 21 percent, the doctoral enrollment percentage has declined. The graduate professional percentage has risen steadily (4.2.1). Despite these enrollment trends, UC research degree production is comparable to other public university competitors. For example, in number of research degrees produced and percentage of research degrees produced in comparison to other types of degrees, UC compares favorably to its competitors. While enrollment needs will vary by program, it is important that academic doctoral student enrollment be supported at sufficient levels to drive UC's research enterprise and support faculty innovation.

UC is proposing a multi-year framework that seeks to improve degree attainment and produce 200,000 more degrees through 2030, in addition to the projected one million degrees. About 12 percent of these additional degrees (over 25,000) would be at the graduate level.

Supporting diverse career paths and making research accessible

To promote and highlight the work of master's and doctoral students across UC campuses, UC holds an annual research communication competition called UC Grad Slam. The event challenges its ten participants — the winners of each campus's Grad Slam — to distill years of academic research into a three-minute presentation free of technical lingo. Grad Slam encourages students to communicate their research in a clear and compelling way to non-specialists — a skill that employers need and value. Campuses provide workshops and resources for students to develop this skill set. The contest also demonstrates to the public that UC research benefits their lives in both ordinary and quite extraordinary ways. UC unfortunately had to cancel the 2020 installment of systemwide Grad Slam due to the coronavirus pandemic. Four UC campuses had already held their own Grad Slam contests and nominated finalists in topics including using insects to find a cure for cancer, exploring the dark corners of the universe, and immunity and microbes.

UC graduate students have also applied their research to make important contributions to the fight against COVID-19. One of the primary symptoms of COVID-19 is difficulty breathing, and approximately one percent of people who contract the virus require ventilators to push air in and out of their lungs and support their recovery. As COVID-19 becomes more widespread, many hospitals have experienced acute shortages of ventilators to treat patients. Along with Drs. James Friend and Lonnie Petersen, UC San Diego graduate students are rapidly developing simple, ready-to-use ventilators through 3-D printing technology.

Career Pathways Survey

In 2017, UC launched the Ph.D. Career Pathways Survey, which is a partnership between the University of California and the Council of Graduate Schools. The survey's third phase will be conducted in 2020, and its purpose is to better understand the career preparation and pathways of Ph.D. students and alumni. While the Council of Graduate Schools is specifically focused on humanities and STEM Ph.D.'s, the University of California is collecting data from doctoral students and alumni in all disciplines.

Results showed high levels of employment and satisfaction with UC Ph.D. programs. Ninety-two percent of respondents were working in a job for pay, 69 percent indicated they were working in a field closely related to their degree, and 54 percent were employed at a higher education institution. Eighty-eight percent of respondents stated that their Ph.D. training prepared them well for their current job, 76 percent stated that they would pursue a Ph.D. in the same field, and 80 percent indicated they would choose the same institution for their Ph.D. education if given the opportunity to choose again.

Equity and inclusion: Expanding academic pathways

A more diverse community of scholars at all levels has been a longstanding goal for UC, but progress at the doctoral, postdoctoral, and faculty levels has been slow. UC's difficulties reflect challenges in both enrolling individuals from underrepresented groups in doctoral programs and in attracting and hiring them as postdoctoral scholars and faculty. Systemwide initiatives aimed at increasing the diversity of UC's academic community include:

UC-Hispanic Serving Institutions Doctoral Diversity Initiative (UC-HSI DDI) — Launched in fall 2019, the UC-HSI DDI aims to improve faculty diversity by enhancing pathways to the professoriate for underrepresented students from California Hispanic Serving Institutions (HSIs). The UC-HSI DDI includes two components: 1) competitive grant awards to UC faculty/faculty administrators to support short-term and long-term programs/projects to enhance and expand pathways to the professoriate for underrepresented students; and 2) funding to directly support graduate student preparation for the professoriate. Funding includes resources to support a limited number of Ph.D. students, named UC President's Pre-Professoriate Fellows, who are California HSI alumni and have advanced to candidacy at UC. The UC President's Pre-Professoriate Fellowship fosters their interest in and preparation for the professoriate. Additional professional development support for underrepresented Ph.D. students is provided to encourage and help equip them to consider careers in the professoriate. Another goal of the UC-HSI DDI is to enhance the climate of academic programs through interventions, incentives, and efforts that foster an academic culture of inclusion and equity — especially for faculty and students from underrepresented communities.

UC LEADS — The **U**niversity of **C**alifornia **L**eadership **E**xcellence through **A**dvanced **D**egree**S** (UC LEADS) program prepares promising UC undergraduate students for advanced education in science, technology, engineering, and mathematics (STEM) fields. The program prepares underrepresented UC undergraduate students for doctoral education opportunities at a UC campus. From its inception in 2000–01 through 2018–19, 1,061 scholars participated in UC LEADS. Of the 932 Scholars who have graduated with their undergraduate degree, 676 (73 percent) are either currently enrolled in graduate school or have already earned degrees in a master's or doctoral program. Given the importance of gender and ethnic equity within STEM-based doctoral programs, it is notable that 50.3 percent are women, 53 percent are first-generation college students, and 52 percent are from underrepresented minority groups. Thirty-five UC LEADS alumni are tenure-track faculty, including eight at UC.

UC-HBCU Initiative — The University of California-Historically Black Colleges and Universities (UC-HBCU) Initiative was established to increase the number of African Americans completing Ph.D.'s at UC by investing in relationships between UC faculty and HBCUs. The program has raised UC's profile within the HBCU community and facilitated faculty research collaborations in addition to enrolling and retaining students.

University of California President's Postdoctoral Fellowship Program (PPFP) — The PPFP was established to encourage outstanding women and minority Ph.D. recipients to pursue academic careers at UC. The program offers postdoctoral research fellowships, professional development, and faculty mentoring to outstanding scholars in all fields whose research, teaching, and service will contribute to diversity and equal opportunity at UC. More information about the PPFP is presented in Chapter 5.

Looking ahead

The University continues to develop programs to enhance the graduate student experience. UC's overall excellence rests on the strength and scope of its graduate programs. Unlike undergraduate enrollment planning, which is based on California's Master Plan, graduate enrollment planning includes the assessment of state and national needs, faculty expertise, program quality (which includes international competitiveness), and financial support. In early 2018, Provost Michael Brown convened a workgroup on graduate education, which examined the current condition and needs of UC's academic doctoral education enterprise. The workgroup, a subcommittee of the Academic Planning Council, focused on the urgent need for significantly greater investment in academic doctoral education. This need, due to long-term underinvestment, has now reached a critical point; UC's research excellence, impact, and dominance cannot be maintained without improved support. The workgroup examined key areas of importance within graduate education, such as providing multi-year guaranteed funding packages upon admission, improving student stipend amounts, prioritizing mental health and well-being, improving diversity and inclusion, and enhancing professional development support. The workgroup issued its final report in 2019, urgently stressing that without adequate support for doctoral education, UC risks its excellence and continued role as a key contributor to California's economy and as a global leader in research.

As with undergraduate students, UC's graduate students are experiencing challenges with basic needs. In 2015, 25 percent of graduate students reported low food security and four percent reported homelessness. UC is currently collecting information to help assess food insecurity and homelessness, and in a future UC graduate student survey, UC will be institutionalizing these items, including housing insecurity, to help understand how to best meet graduate students basic needs.

The effects of long-term inadequate support for students have recently resulted in systemwide Teaching Assistant wildcat strikes and graduate student cost-of-living protests. These issues continue to be challenging. However, some progress is being made. UC Irvine has guaranteed five years of funding support for doctoral admits since 2016. UC Santa Cruz announced this commitment in 2019, and UC San Diego and UC Berkeley are committed to offering this support in the near future. The remaining campuses continue to examine this matter. These commitments let students know they will have guaranteed funding support (in various forms, including fellowship, graduate student researcher appointment, and/or teaching assistantship) for five years or for the normative time to complete their degree (if less than five years). The assurance that they will be funded each year can help reduce some of the financial stress students face. In an effort to help mitigate financial concerns and better support doctoral students, several campuses are also offering various forms of cost-of-living or housing supplements.

As part of the University of California's multi-year framework, UC's goal is to grow 200,000 more degrees (on top of the one million projected) by 2030. Of those, 40,000 are expected to be graduate degrees, which will help UC meet critical workforce needs, along with helping UC expand the pathway to graduate education for the new generation of students – that is, California's Pell, first-generation and underrepresented students. UC needs to be able to grow graduate enrollment to achieve this goal and UC's success would increase graduate student diversity to better reflect California and expand availability pools for future UC and other university faculty.

For more information

UCOP Graduate Studies: ucop.edu/graduate-studies

Time to doctorate at UC: universityofcalifornia.edu/infocenter/time-to-doctorate

Doctoral completion rates: universityofcalifornia.edu/infocenter/doctoral-rates

Graduate student financial support and net cost of attendance: universityofcalifornia.edu/infocenter/net-cost

Employment and doctoral experience of Ph.D. recipients: universityofcalifornia.edu/infocenter/employment-and-doctoral-experience-phd-recipients

Doctoral program data: universityofcalifornia.edu/infocenter/doctoral-program

UC Grad Slam: gradslam.universityofcalifornia.edu

UC-Hispanic Serving Institutions Doctoral Diversity Initiative (UC-HSI DDI): ucop.edu/graduate-studies/initiatives-outreach/uc-hsi-ddi.html

UC LEADS: ucleads.org/

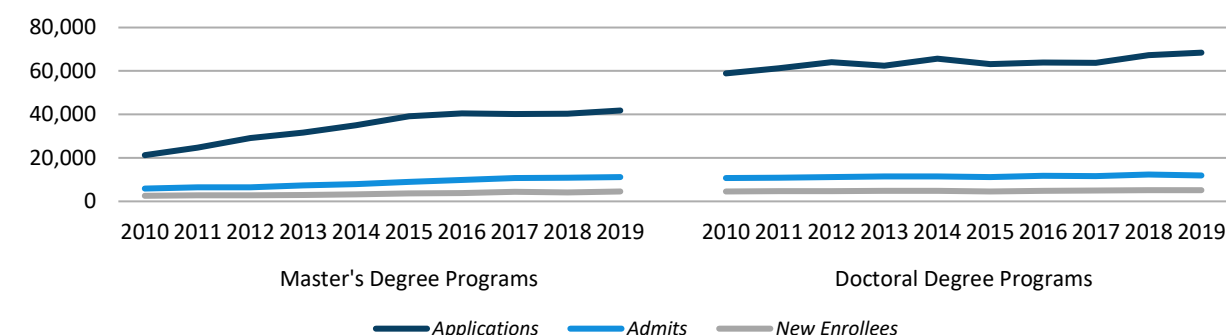
UC-HBCU Initiative: ucop.edu/uc-hbcu-initiative/index.html

President's Postdoctoral Fellowship Program: ppfp.ucop.edu/info/index.html

4.1 GRADUATE ACADEMIC ADMISSIONS

Universitywide graduate academic applications have increased substantially since 2010, while admits and new enrollments have remained relatively flat.

4.1.1 Graduate academic applications, admits, and new enrollees by degree program Universitywide Fall 2010 to Fall 2019



		Master's Degree Programs		Doctoral Degree Programs	
		2010	2019	2010	2019
Physical Sci/ Math	Applications	1,237	2,699	9,802	14,400
	Admits	341	664	2,374	3,204
	New Enrollees	158	208	843	1,138
Engineering/Comp Sci	Applications	11,085	30,399	14,980	18,295
	Admits	3,406	7,744	2,876	2,915
	New Enrollees	1,284	2,846	1,132	1,193
Life Science	Applications	1,961	2,365	9,987	12,932
	Admits	673	941	1,952	2,228
	New Enrollees	384	512	877	1,071
Social Sci/ Psych	Applications	1,018	1,061	10,961	11,075
	Admits	426	630	1,557	1,658
	New Enrollees	182	245	671	720
Arts & Humanities	Applications	4,229	3,700	7,954	6,870
	Admits	493	462	1,181	1,100
	New Enrollees	323	291	568	527
Interdisciplinary/Other	Applications	1,733	1,554	5,176	4,863
	Admits	543	789	775	833
	New Enrollees	232	422	438	433

Source: UC Corporate Student System. A small number of professional doctoral programs are also included in these data. Universitywide applications and admits are duplicated in this report since students often apply to more than one campus.

The demand for UC academic master's and doctoral programs has increased steadily since 2010. Applications for admission grew from 80,000 in 2010 to 107,200 in 2019. Nearly all of this increased demand has come from prospective international students, with international applications growing from 34,400 to 64,400 — a rate of almost ten percent per year. Engineering and computer science programs have significantly higher demand from international students than do other disciplines. Recent survey data compiled by the Council of Graduate Schools show a

similar nationwide trend of growth in applications from international students, with engineering as the most popular field for international applicants.¹

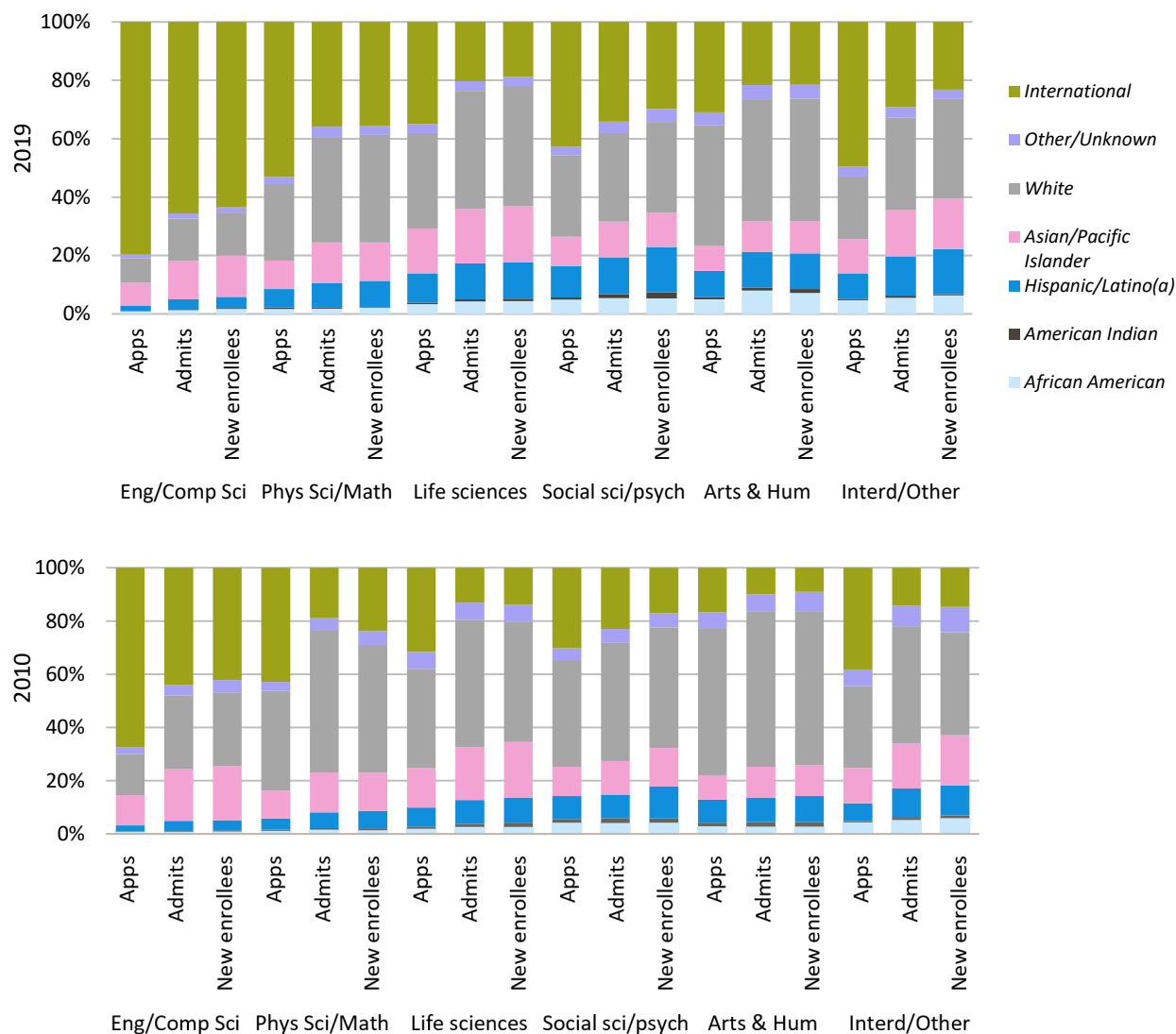
Since 2010, admits increased from 16,500 to 23,168 in 2019, and new enrollments increased from 7,000 to 9,600. Though applications are now predominantly (59 percent) from international students, both admits and new enrollments of domestic students exceed those of international students.

¹ cgsnet.org/ckfinder/userfiles/files/2017_International_Survey_Report_Final.pdf

4.1 GRADUATE ACADEMIC ADMISSIONS

Since 2010, the number and share of graduate academic admissions have significantly increased for international students.

4.1.2 Graduate academic applications, admits, and new enrollees by race/ethnicity and discipline Universitywide Fall 2010 and 2019



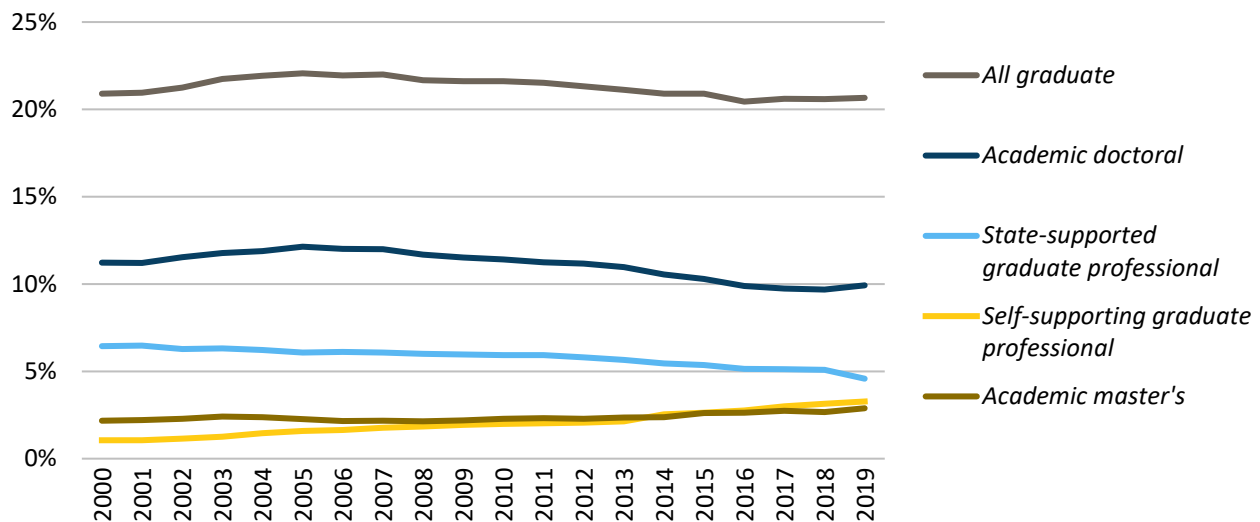
Source: UC Data Warehouse

International students represent the majority of applicants, admits, and new enrollees in engineering and computer science graduate programs. While the share of international students in all other disciplines also increased between 2010 and 2019, the majority of eventual enrollees are not international. Social science and humanities programs have the highest shares of enrollment among underrepresented minority students, and those shares increased between 2010 and 2019.

4.2 GRADUATE ACADEMIC AND PROFESSIONAL ENROLLMENT

Graduate enrollment, as a share of UC's total undergraduate and graduate enrollment, has declined slightly and remains well below comparable institutions.

4.2.1 Graduate enrollment share of total Universitywide Fall 2000 to Fall 2019



Source: UC Corporate Student System. Academic master's students include post-baccalaureate, teaching-credential students. Graduate professional includes professional master's (e.g., M.B.A., M.Ed.) and professional practice (e.g., J.D., M.D.) degrees.

With 21 percent graduate enrollment in 2019, including health science students, UC was lower than the average for non-UC AAU¹ public institutions, at 27 percent, and the average for AAU private institutions, at 56 percent.

UC awards 20 percent of California's graduate academic master's degrees, 62 percent of its academic doctoral degrees, and 21 percent of its graduate professional practice degrees.

In fall 2019, the proportion of academic doctoral students varied across UC's general campuses, from seven percent at Merced to 12 percent at Berkeley. At San Francisco, an exclusively graduate health-sciences campus, academic doctoral students made up 28 percent of fall 2019 enrollments. Since 2009, the share of academic doctoral students has declined at most campuses due to more rapid growth in the undergraduate, master's, and professional populations.

Percent of students who are academic doctoral		
	Fall 2009	Fall 2019
San Francisco	28%	28%
Berkeley	17%	12%
Los Angeles	12%	11%
Davis	11%	11%
Santa Barbara	11%	9%
San Diego	11%	9%
Riverside	10%	9%
Irvine	10%	9%
Santa Cruz	7%	8%
Merced	7%	7%
Universitywide	12%	10%
	(26,245)	(28,447)

Source: UC Data Warehouse

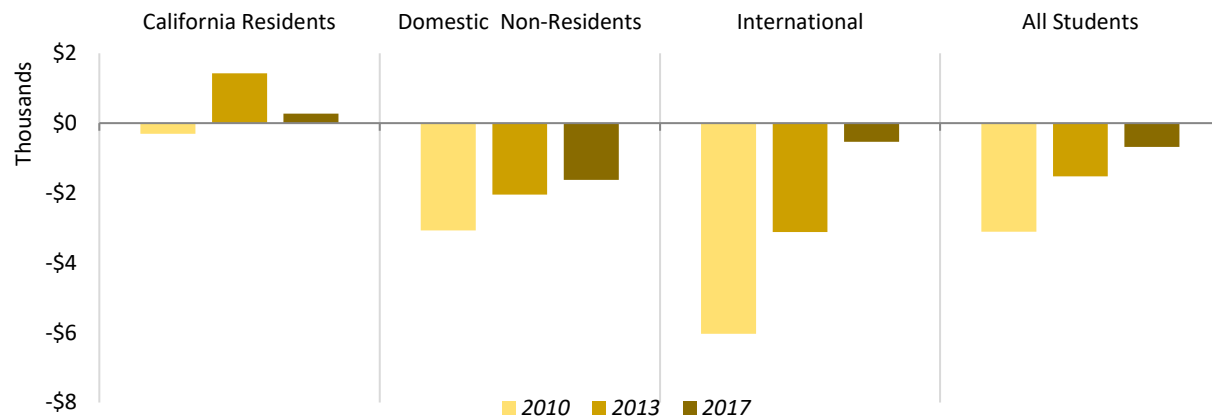
¹ A list of the institutions in the AAU comparison groups can be found in the data glossary.

4.2 GRADUATE ACADEMIC AND PROFESSIONAL ENROLLMENT

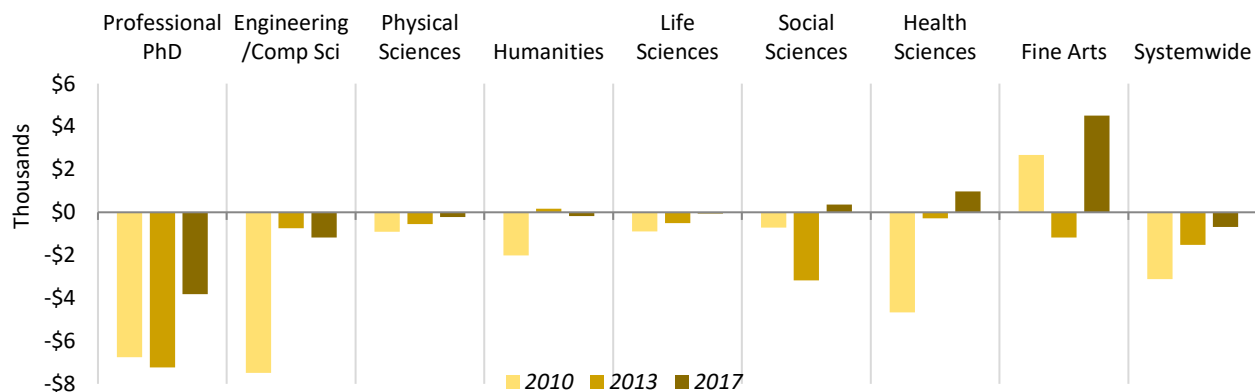
UC net stipends remain below competitive offers, although the gap decreased substantially between 2010 and 2017.

4.2.2 Average net stipend offered to graduate academic doctoral students admitted to UC compared with their first-choice non-UC schools
Universitywide
2010, 2013, and 2017

By residency



By broad discipline



Source: UC Graduate Student Support Survey. Graduate academic professional doctoral programs include EdD, D.Env., DrPH., D.P.T. and D.N.S.

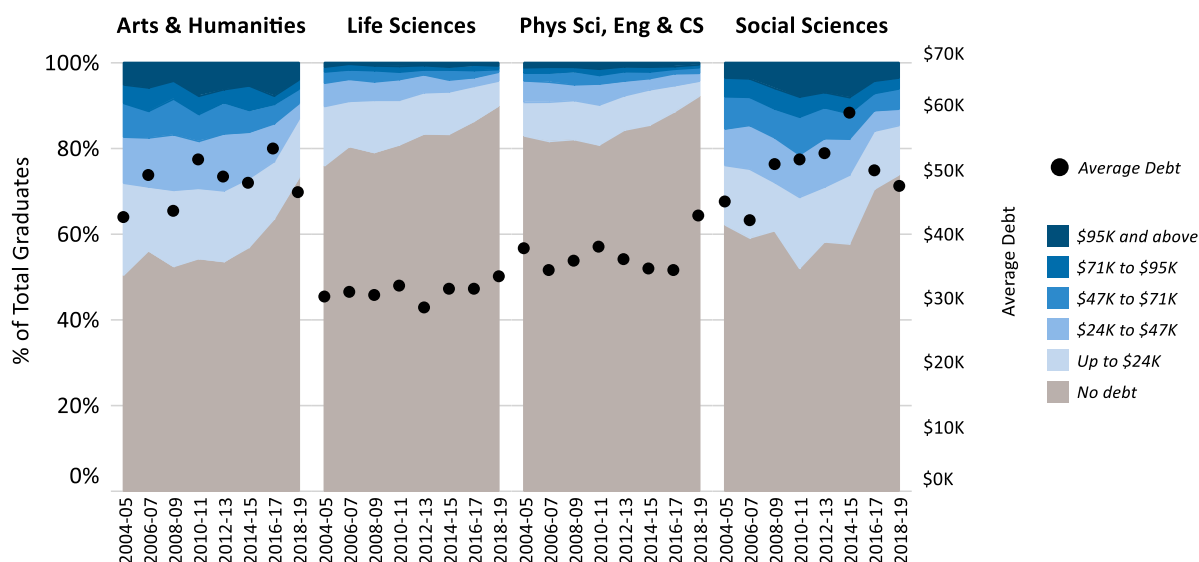
Doctoral students are crucial to a university's research enterprise and instructional programs. To attract the most highly qualified applicants, universities offer aid packages that include the cost of tuition and stipends. Net stipend is the amount of aid that students have for living expenses after tuition and fees are paid. It does not include loans that the student may be offered. The "stipend gap"

varies by discipline, as shown in the chart above. Since 2010, UC has made considerable progress in closing the net stipend gap with competing institutions, reducing it from \$3,000 to about \$700 in 2017. However, a considerable gap remains between UC's average net stipend and growing living costs in California.

4.2 GRADUATE ACADEMIC AND PROFESSIONAL ENROLLMENT

More than half of UC doctoral students graduate without debt. Doctoral students in the physical and life sciences have seen smaller increases in debt since 2004–05, and graduate with less average loan debt than those in the social sciences and arts and humanities.

4.2.3 Academic doctoral students' graduate debt at graduation, by discipline, domestic students Universitywide Graduating classes of 2004–05 to 2018–19 (every two years)



Source: Corporate Student System¹

Depending on the field of study, between 70 percent (arts and humanities) and 90 percent (physical and life sciences) of UC doctoral students take on no additional debt during graduate school.

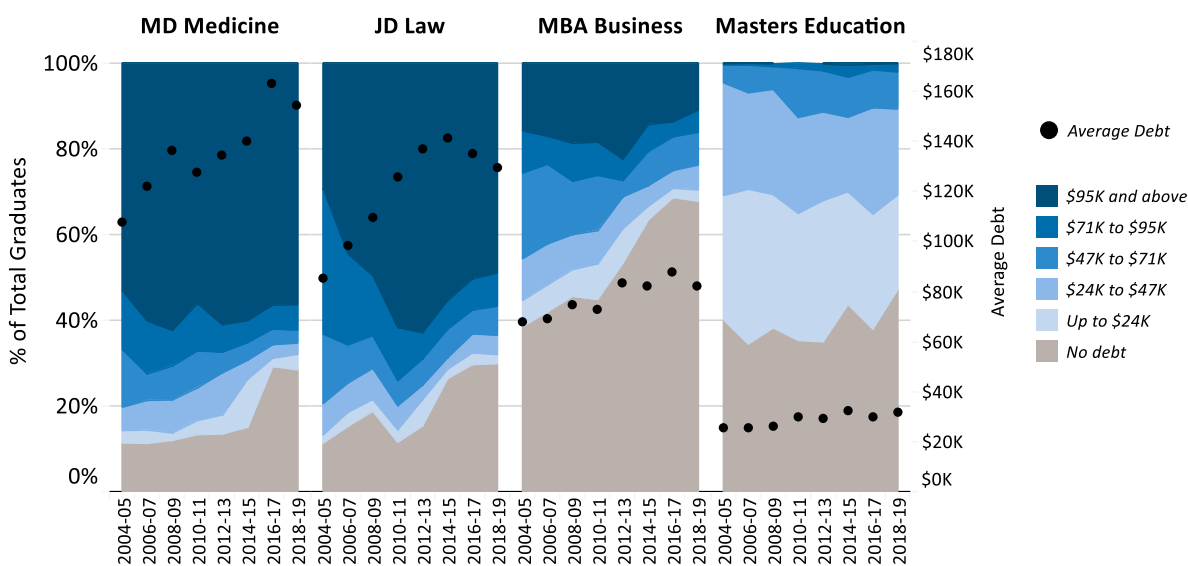
Several factors account for the difference in debt burden between doctoral students in the physical and life sciences and those in other disciplines. Physical and life science students are more likely to be supported by research grants. In addition, their programs take less time on average to complete than do programs in the social sciences or arts and humanities.

¹ Debt categories are inflation-adjusted in 2018 dollars using CA CPI-W. "Other" includes interdisciplinary and professional fields. Life sciences include health sciences.

4.2 GRADUATE ACADEMIC AND PROFESSIONAL ENROLLMENT

Graduates with the highest debt levels come from professional schools that charge higher supplemental tuition.

4.2.4 Graduate professional degree student debt at graduation, by discipline, domestic students Universitywide Graduating classes of 2004–05 to 2018–19 (every two years)



Source: UC Corporate Student System¹

On average, about 55 percent of the aid awarded to graduate professional degree students comes in the form of loans rather than fellowships or grants. By comparison, loans constitute less than five percent of the aid awarded to graduate academic students. Graduate funding models require greater reliance on loans for professional degree students as their programs are of shorter duration, and many fields offer potentially higher incomes after graduation.

Most graduate professional degree students finance part of their education by borrowing. The increases since 2004–05 in average inflation-adjusted debt levels of graduating professional degree students vary considerably. Increases in graduate debt result from a combination of factors, including steady growth in tuition, cost of living increases, and greater student reliance on federal student loan programs.

¹ Average debt is among graduates with debt. Debt categories are inflation-adjusted in 2018 dollars using CA CPI-W.

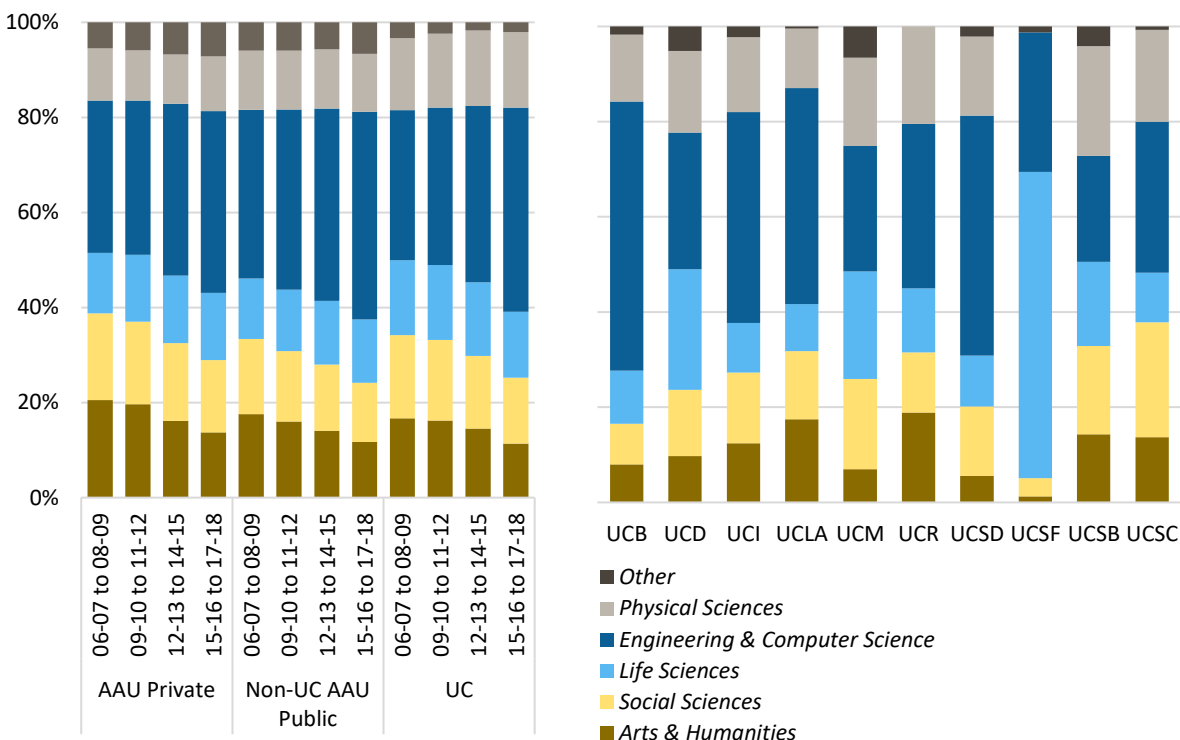
4.3 GRADUATE ACADEMIC STUDENT OUTCOMES

Like other major research universities, UC awards a high proportion of graduate academic degrees in science, technology, engineering, and mathematics (STEM) fields.

4.3.1 Graduate academic degrees awarded by discipline

UC and AAU private and public comparison institutions

Number of degrees grouped in 3-year intervals: 2006–07 to 2008–09, 2009–10 to 2011–12, 2012–13 to 2014–15, 2015–16 to 2017–18; campus-level data for 2015–16 to 2017–18



Source: IPEDS¹

UC graduates have had major impacts on the nation and the world — creating much of California’s biotechnology and computer industries, developing research breakthroughs that have led to major medical advances, shaping ideas about our world and culture, creating the economic and social infrastructure of our communities, and assuming political leadership in California and the nation.

UC’s graduate STEM programs reflect the predominant industries in California’s economy. In addition to leading all California institutions in the production of engineering and computer science

degrees, UC far outpaces them in the production of degrees in the biological sciences — key to driving the growth of California’s biotechnology sector.

More than 25 UC Ph.D. recipients have been awarded Nobel Prizes.

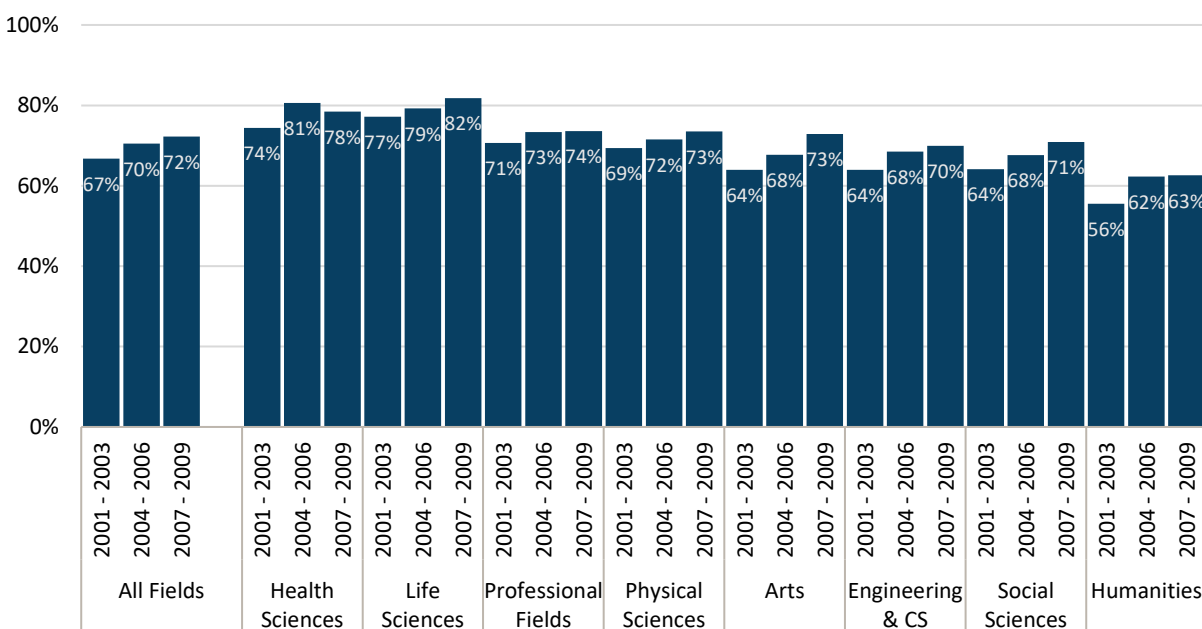
Since 2006–07, the number of graduate academic degrees awarded at UC grew by 44 percent, compared to 61 percent at the group of AAU private institutions and 38 percent for the group of non-UC AAU public institutions.

¹ “Other” includes interdisciplinary and academic degrees in otherwise professional fields, such as architecture, communications, and public administration.

4.3 GRADUATE ACADEMIC STUDENT OUTCOMES

UC's doctoral completion rate increased in nearly every field over the two most recent cohorts studied.

4.3.2 Doctoral completion rates after ten years, by broad field Universitywide Fall 2001–2003, 2004–2006, and 2007–2009 entry cohorts



Source: UCOP Corporate Student System

The Universitywide ten-year doctoral completion rate across all fields for the fall 2007–09 entering cohorts was 72 percent. This is an increase from the 70 percent completion rate reported for the 2004–06 cohort. Among broad disciplines, life sciences and health sciences continue to have the highest completion rates. Engineering and computer sciences, social sciences, and humanities showed the lowest rates, owing to the longer normative time in those fields and different financial support models, although both experienced an increase compared to previous cohorts.

The overall improvement in ten-year completion rates may be attributed to at least two factors. First, student demographics have shifted to include a larger percentage of international students, who, as a group, have a higher ten-year completion rate than the overall cohort's rate. (A variety of factors influence this difference, including different tuition rates for international students.) Second, shifts over time in enrollment toward disciplines with higher completion rates (STEM fields) affect the overall ten-year completion rate.

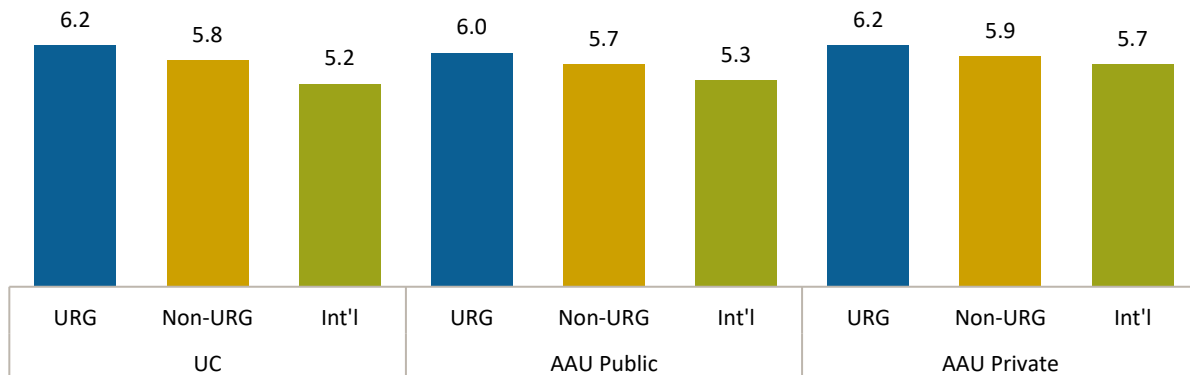
The Doctoral Completion Rates dashboard is available at:
universityofcalifornia.edu/infocenter/doctoral-rates

4.3 GRADUATE ACADEMIC STUDENT OUTCOMES

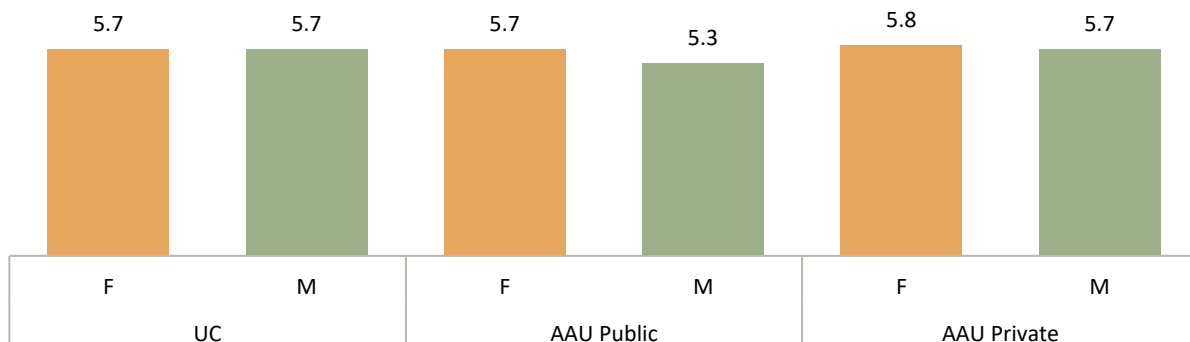
UC's median ten-year time to doctorate by ethnicity and gender compares well with AAU institutions.

4.3.3 Median ten-year time-to-doctorate, by ethnicity and gender Universitywide, AAU public and AAU private comparison institutions 2014 to 2016 exit cohort

By race



By gender



Source: Survey of Earned Doctorates, National Opinion Research Center

The median number of years required to complete a doctoral degree at UC (elapsed time-to-doctorate) is comparable to that at other major research universities. Men and women complete the doctorate in about the same amount of time at UC, compared to AAU public institutions where men's time-to-doctorate is nearly half a year less than women's. Students from underrepresented groups (URG) have slightly longer time-to-doctorate at UC and comparison institutions, whereas international students required substantially less time to complete the doctorate.

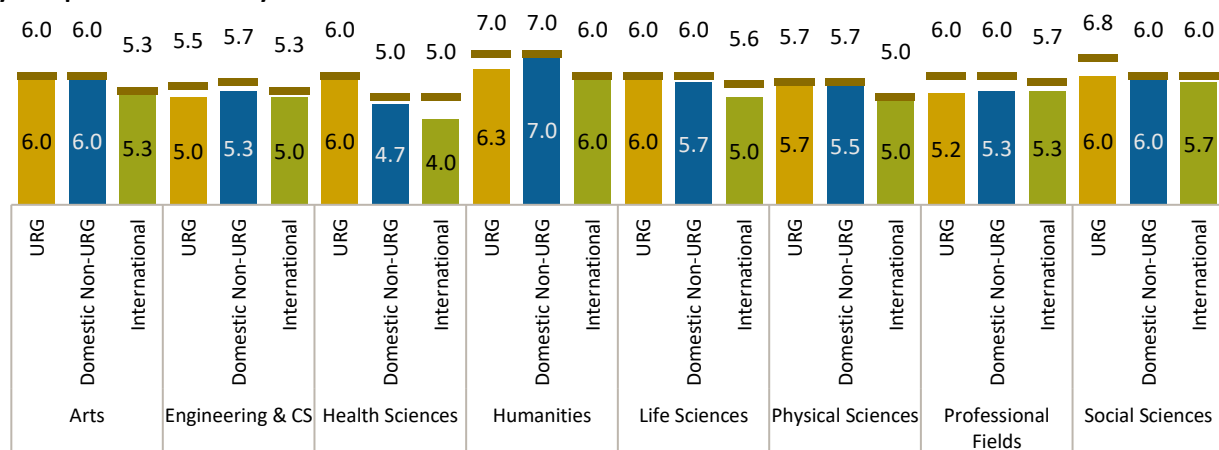
The Time to Doctorate dashboard is available at: universityofcalifornia.edu/infocenter/time-to-doctorate

4.3 GRADUATE ACADEMIC STUDENT OUTCOMES

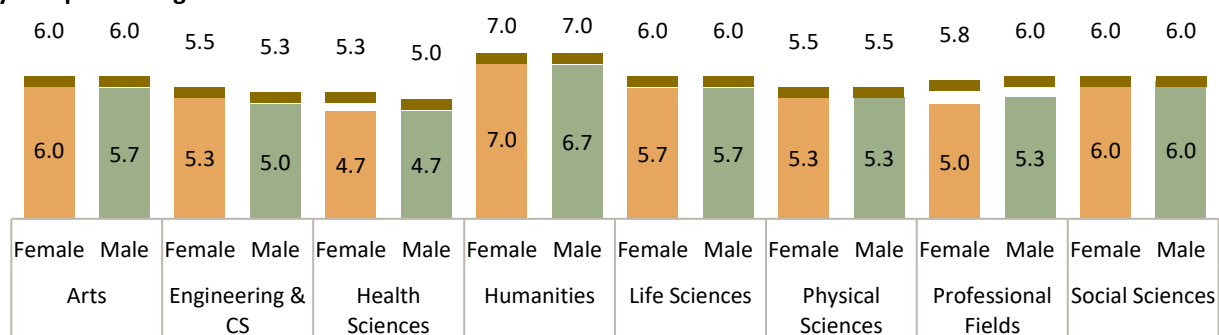
UC's median ten-year time-to-doctorate varies by ethnicity, gender, and discipline.

4.3.4 Median ten-year time-to-doctorate, by ethnicity and gender, by discipline Universitywide 2016 through 2018 exit cohort

By discipline and ethnicity



By discipline and gender



■ Registered — Elapsed

Source: Survey of Earned Doctorates.

In three of eight disciplines, students from underrepresented groups (URG) have higher registered time-to-doctorate (RTD, the amount of time a student is enrolled in coursework or dissertation units) than non-URG and international students. URG students have slightly lower RTD than non-URGs in engineering and computer science, humanities, and professional fields. The elapsed time-to-doctorate (ETD, the amount of time from first enrollment in a doctoral program) for URGs is higher than or equal to non-URGs. International students generally have lower ETD and RTD in all disciplines.

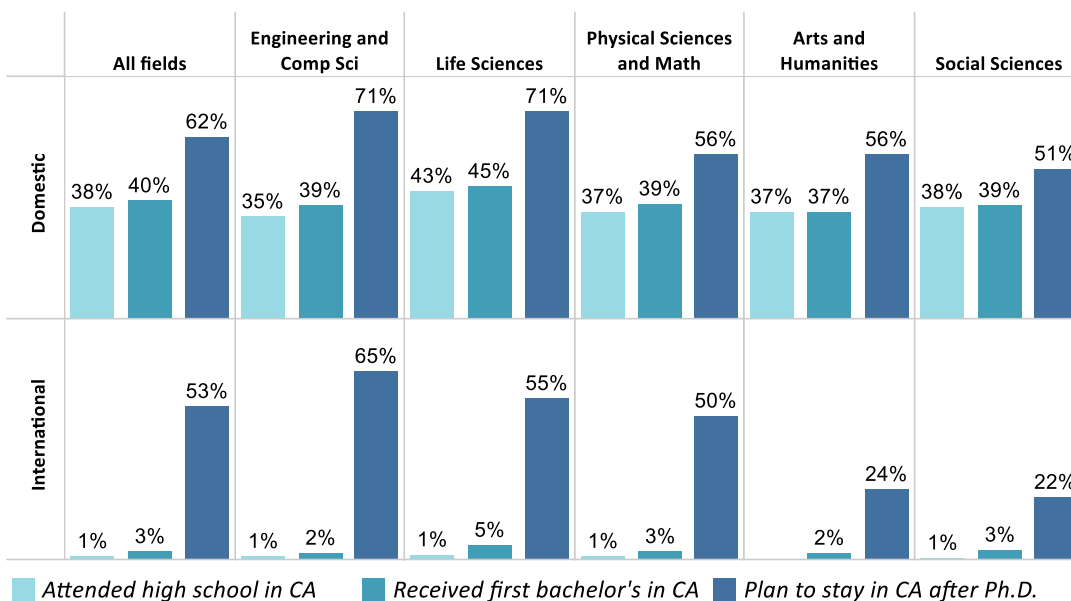
Men and women generally have comparable time-to-doctorate, with exceptions in health sciences, where women have a longer ETD, and the arts, where women have a longer ETD and RTD.

The Time to Doctorate dashboard is available at: universityofcalifornia.edu/infocenter/time-to-doctorate

4.3 GRADUATE ACADEMIC STUDENT OUTCOMES

More than half of UC's academic doctoral degree recipients plan to stay in California, a greater share than those who attended high school or college in California.

4.3.5 Origin and planned destination of UC academic doctoral degree recipients Universitywide 2008–09 to 2017–18



Source: Survey of Earned Doctorates

The most recent data for UC's doctoral degree recipients, based on those graduating between 2008–09 and 2017–18, show that over half plan to stay in California. Sixty-two percent of domestic doctoral degree recipients intend to stay, though only 40 percent of this cohort received their bachelor's degrees in California, and only 38 percent attended high school in California. This proportion is higher in engineering, computer science, and life sciences fields, indicating that UC graduates are contributing to California's robust economy in these areas.

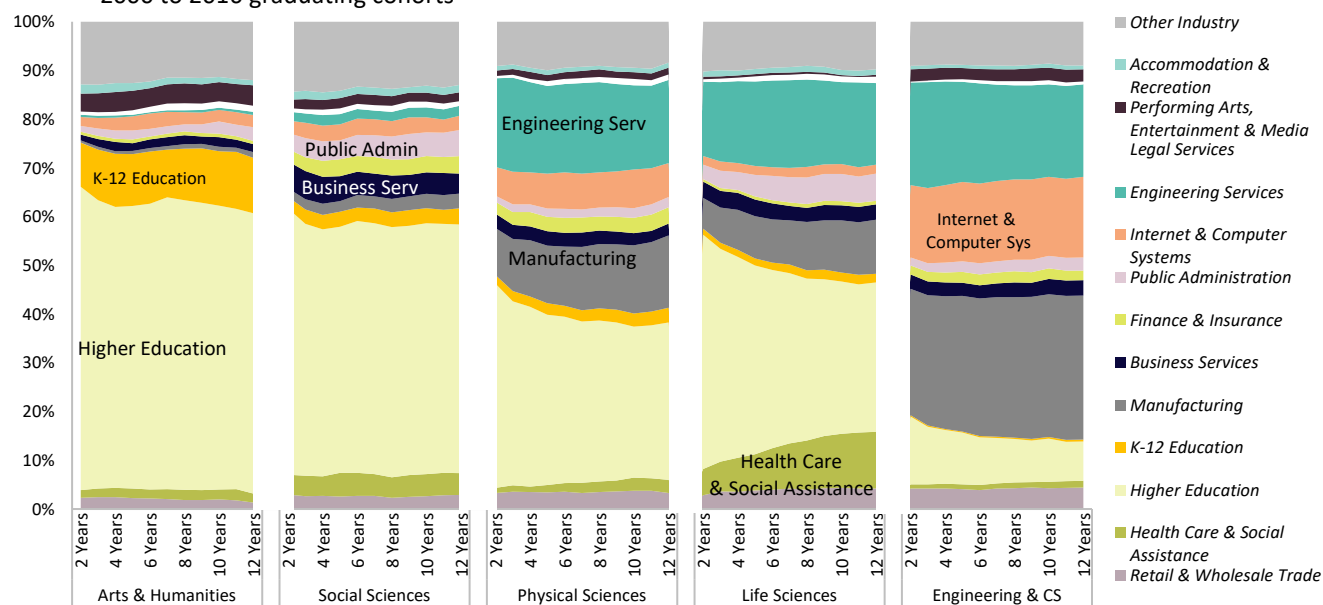
Though a negligible share of UC's international (not a U.S. citizen nor permanent resident) doctoral recipients attended high school or college in California, half intend to stay after graduation.

The Survey of Earned Doctorates (SED) is conducted for all individuals receiving a research doctoral degree. It is sponsored by the National Science Foundation, National Institutes of Health, U.S. Department of Education, U.S. Department of Agriculture, National Endowment for the Humanities, and NASA.

4.3 GRADUATE ACADEMIC STUDENT OUTCOMES

Half of UC academic doctoral and master's graduates who stay in California work in higher education.

4.3.6 Industry of employment of UC graduate academic students in CA, by year after graduation Universitywide 2000 to 2016 graduating cohorts



Source: California Employment Development Department and UC Corporate Student System¹

More than 50,000 graduates of UC academic doctoral and master's degree programs in fields other than engineering/computer science have entered the California workforce since 2000. Over half of them (50 percent) have gone on to work in the state's higher education workforce, which includes all of the two-year and four-year colleges, both public and private. This highlights the critical role of UC's graduate academic programs in producing the cadre of faculty who teach California's future college-educated workforce and conduct research that advances the state and national economies.

The contributions of UC academic doctoral and master's graduates to the state workforce go beyond higher education. About 14 percent of the employed graduates of UC physical sciences and life sciences programs work in the state's manufacturing sector, while another 24 percent work in the engineering

industry. This shows that the skills gained in UC academic doctoral and master's programs are both applicable and relevant to key high-tech industries.

UC graduate academic programs in engineering and computer science supply workers to the state's high-skilled and high-tech industries. Since 2000, over 23,000 graduates of these programs have entered the California workforce, with 34 percent working in the manufacturing sector and 29 percent working in engineering services. Another 24 percent go on to work in the state's fast-growing internet and computer services industry. About 16 percent of engineering and computer science graduates go on to teaching and research positions in the state's college and university systems.

The job market for doctoral and master's degree recipients is nationwide, and those who leave California are not tracked in this data source.

¹ Includes very small numbers of graduate professional students, who do not affect the overall picture.

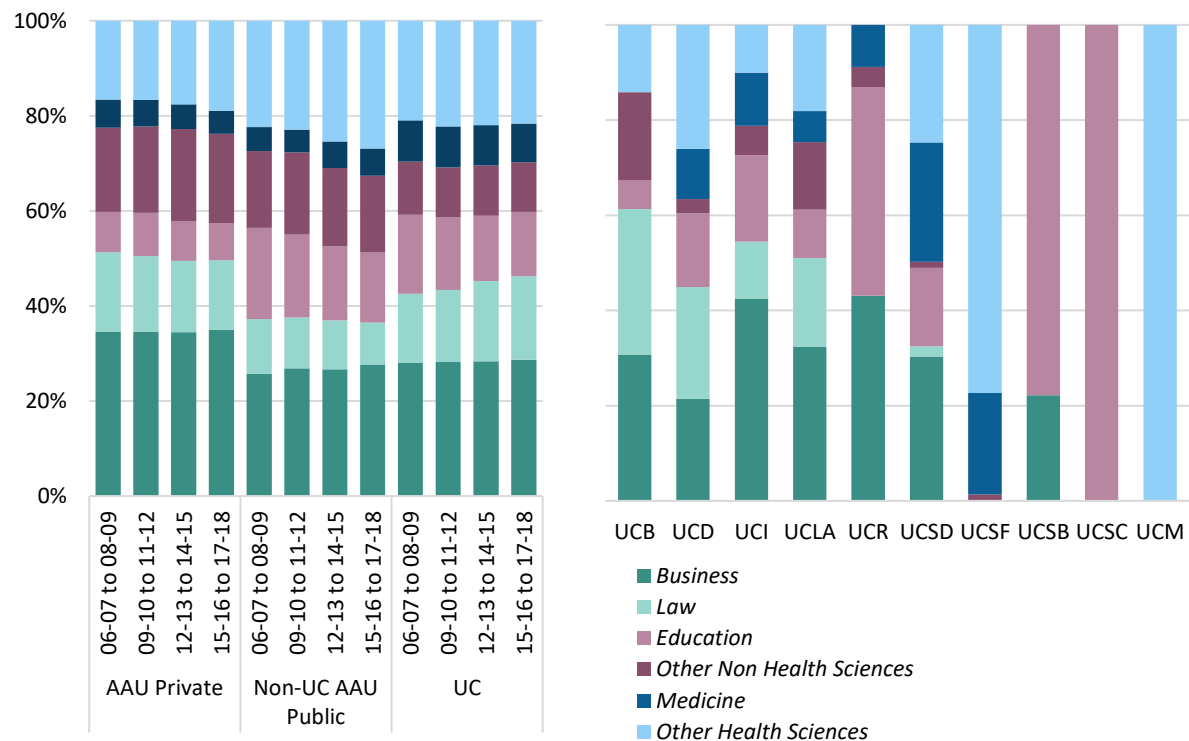
4.4 GRADUATE PROFESSIONAL STUDENT OUTCOMES

Like other major research universities, UC awards a high proportion of professional degrees in business.

4.4.1 Graduate professional degrees awarded by discipline

UC and AAU private and public comparison institutions

Number of degrees grouped in 3-year intervals: 2006–07 to 2008–09, 2009–10 to 2011–12, 2012–13 to 2014–15, 2015–16 to 2017–18



Source: IPEDS¹

The proportion of professional degrees awarded by UC is comparable to AAU private and public institutions, with the greatest proportion of degrees awarded in business. The number and size of graduate professional degree programs vary by campus, with UCLA awarding the greatest number of professional degrees.

UC is also showing a growth in the proportion of law degrees, in part due to the School of Law at UC Irvine, which opened in 2009.

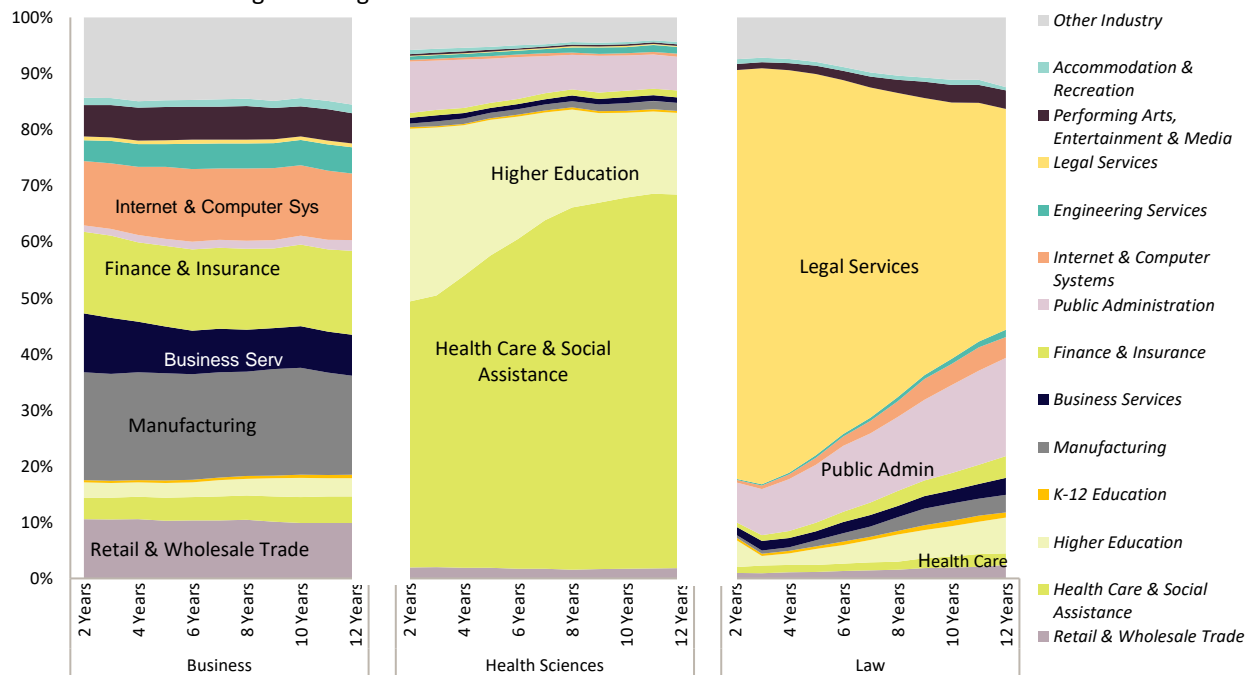
Since 2003, UC has opened new professional schools in several other areas, including the Rady School of Management at UC San Diego in 2003, the School of Medicine at UC Riverside in 2013, the Sue and Bill Gross School of Nursing at UC Irvine in 2017, and the School of Public Health at UC San Diego in 2019.

¹ UC Merced added a professional master's program in public health in 2017. "Other" includes disciplines such as public administration, architecture, communications, and library science.

4.4 GRADUATE PROFESSIONAL STUDENT OUTCOMES

UC professional programs prepare graduates for careers related to their field of study.

4.4.2 Industry of employment of UC graduate professional students in California, by year after graduation Universitywide 2000 to 2016 graduating cohorts



Source: California Employment Development Department and UC Corporate Student System¹

Graduates of UC Master of Business Administration (MBA) programs contribute significantly to the state's high-skilled and high-tech industries. The 23,000 UC MBA graduates who have entered the California workforce since 2000 have worked in a wide array of industries, including manufacturing (26 percent), finance and insurance (20 percent), retail and wholesale trade (18 percent), and internet and computer systems (22 percent).

Over 15,000 graduates of UC health science professional practice programs (e.g., M.D., D.D.S., Pharm.D.) have gone on to work in California since 2000. The majority of these graduates (65 percent) go on to work in the state's health care and social assistance sector. This highlights UC's role, per the Master Plan, as the state's sole public provider of many health science professional practice degrees and validates UC's success in fulfilling that role. UC health science graduates also play key roles in other

areas of public service in the state, including 38 percent who go on to work in the state's higher education system and ten percent who work in state government.

UC law school graduates go on to work in two main areas — legal services and government. Of the 11,000 UC law school graduates who have worked in California since 2000, about 79 percent eventually find positions in the legal services industry. Another 19 percent go on to work in the public sector as government prosecutors and public defenders, and in other public agency roles. A large percentage of law school graduates start off in legal services initially after receiving their degree (73 percent), but by ten years after graduation this percentage has fallen to about 46 percent. The percent of UC law school graduates in government rises from seven percent to 16 percent over the same period.

¹ Includes very small numbers of graduate academic students (e.g., Ph.D. business), which do not affect the overall picture.